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STATE SOCIETIES OF SANITARIANS

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THE so-called voluntary agencies have frequently embarrassed the health officer. The reasons for difficulty have been various, but it is not my purpose here to dwell on the relative functions of official and unofficial agencies. This matter has been thoroughly discussed[a] and it is conceded that each has a service to render. There is a different type of state society, which already exists in some states and which can be organized in others, that may be helpful both to the health officer and the worker in the voluntary agency in overcoming this misunderstanding.

In every state there are engaged in public health work a state health department, the physicians organized into a state medical society, local health departments, Red Cross chapters, tuberculosis associations or other popular voluntary agencies. These various organizations have been created for sundry purposes, and have certain diverse motives. Each agency that is actually operating in the state, however, has engaged public health workers to serve it. Administrators, chemists, bacteriologists, physicians, nurses, engineers, statisticians, and others who are professionally trained, are employed to use their special knowledge at the direction of the organization which engages them.

Let us focus our attention for a moment on these people as individuals and forget their relationship to this or that organization. As individuals they are skilled workers and even scientists—with a common training in certain fundamentals of public health procedure. They have all foregone the profits of private enterprise to devote themselves to a public and a common cause. They should, therefore, have a mutual understanding and sympathy for one another's scientific problems, regardless of their different organizational affiliations. As a matter of fact, a man who is to-day acting as a city health officer may to-morrow be employed by a voluntary agency, and a nurse who yesterday was working for the Red Cross may to-day be a representative of the state health department. When these people change positions, their attitude toward the science of public health does not alter, and they are probably no better or no worse public health workers than

a. See Emerson, Haven; Hatfield, Charles J.; Nesbitt, Charles T.; Curtis, Francis George; Hattie, W. H.; Relative Functions of Official and Non-official Health Agencies, A.J.P.H., Vol. 10, No. 12 (Dec.), 1920.

they were before the change occurred. This brings us to a conception of a certain group of people in each state which has a professional unity. The members of this group, which has been developing in America during the past fifty years or so, have a common tradition, a similar training, and a like purpose. The Surgeon General's Conference on Education, held in 1922, gave to the members of this public health profession the title of sanitarians.

When the field of public health was first tilled there were no sanitarians as such, and it was necessary to draft the services of those primarily trained as physicians, civil or military engineers, research workers, such as chemists and bacteriologists, and others whose education had dealt with certain aspects of the newly recognized public health problem. By experience these people gradually acquired the knowledge that had not been given them in school. Even to-day most of those who are engaged as sanitarians have not had any broad educational training for their jobs; and until somewhat recently such training has not indeed been available. It is coming to be more and more appreciated, however, that the makeshift training of the past will not suffice in the future, and although for the time being we must continue to engage inadequately educated workers, the time is approaching when there will be a corps of sanitarians specifically trained for their tasks, and whose education will not be encumbered with impertinent material. Until this new professional group is ready to take the field, the profession must necessarily consist of those who have been taken away from other professions, and it is to this present group, in which the health officer is a most important element, that the profession of public health must look for its future guidance and development.

The advancement of a profession depends on its organization and the Committee on Reorganization of the American Public Health Association which reported at the Cleveland meeting in 1922 took consideration of the necessity for close affiliation between the national association and its members in the various states. The new constitution which was presented to and adopted by the Association at that time, therefore, made provision for affiliated state public health societies. It limited the number of such societies to one from each state, and insisted that these societies be organized for the same general purpose as the national association. In other words, it insisted that the affiliated state health societies be professional societies, and automatically excluded from consideration affiliation with such organizations as the tuberculosis associations or other lay public health associations.

Incidentally, there has been considerable misunderstanding regarding both national and state public health organizations because of the different uses of the same word "association." The word "society" would perhaps better designate not only the American Public Health Association but the various state organizations composed of those professionally engaged in public health work, reserving the word "association" for those groups in which active membership is open to any one, and which are primarily emotional or charitable in character rather than scientific or professional.

The state health officer naturally inquires what is to be his relationship to the state society of sanitarians. He is conscious of the number of other public health agencies that he has to deal with, and he might be fearful lest this society of sanitarians be but another difficulty for him. Instead of creating additional difficulties, these societies where they have been established or where they will be established can simplify his problem.

In the first place the state health officer and the professional employees of his department can in the state society of sanitarians meet the city health officer and his professional employees on the basis of professional interest, and in this atmos-

sphere can discuss the problems of the control of disease, the control of the environment, and the maintenance of health, on a scientific basis. In a society of sanitarians the state health officer can also meet on a professional basis the employees of unofficial organizations which are at work in his state and on this basis arrive at a satisfactory method of cooperation in applying science to the good of the people for whom they are both working.

The state society of sanitarians can be of value to the state health officer not only in a scientific aspect, as it provides an opportunity for discussion, but it also can give authoritative professional support to his program of work throughout the state. Especially in legislative matters the state society of sanitarians can be helpful. The state health officer, the city health officer and the employee of the unofficial agency are alike interested in the formulation of public health laws founded on the basis of scientific fact. They are opposed to quackery and the whole public health profession organized in a state society can give to legislators and others interested, a scientific opinion on proposed public health laws, which physicians or other groups cannot do because they are immediately charged with selfish motives.

Societies such as I have outlined already exist in some states, and although many have been less active in recent years than formerly, a renewed interest in their activities is apparent and in at least one state a new association has been formed. It behooves every state officer, therefore, to take cognizance of this activity on the part of his professional confrères and to see that he and his associates in the state health department have an active part in the development of these societies. Moreover, he is in a strategic position to advance the development of these societies and to help them wisely.

One state health officer has manifested uneasiness lest such societies, because of their relationship to a national organization, interfere with his local program. As he expressed it, "Will the state society become the local tentacle of another national octupus?" There is no need to assure the state health officers and the other members of the American Public Health Association that their association has no intention of reversing its traditional policy of noninterference in local administration. Its dealings are with the public health worker of the state and not with the people.

The state societies are actually autonomous and no provision is made for directing their work by a national office. On the other hand, the state society is privileged to name a member of the Governing Council of the national association, which representative has the same rights, privileges and powers as the other members of the Council. In short, the state society has one vote in the governing body of the national association, and the national association has no vote in the affairs of the state society. The attitude of the American Public Health Association is not one, however, of utter aloofness, and the Executive Board of the Association has recently approved of the executive office of the Association offering to state societies certain services which it is hoped may be helpful in developing them. Requests for such service will be welcomed and when the sanitarians of a state organize for their mutual professional advancement they and the state health officer may count on their association to render every assistance possible in the performance of their work with a guarantee of freedom from interference from national headquarters.

THE TREND OF MATERNAL-MORTALITY RATES IN THE UNITED STATES DEATH-REGISTRATION AREA, 1900-1921[a]

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THE MATERNAL-MORTALITY rate in the United States death-registration area is increasing, if the statistics can be accepted. Apart from the question of the reliability of the figures, such a conclusion is surprising in view of the increased attention paid to medical education and to public-health administration and the increasing interest that the public takes in questions of health. Before the conclusion is accepted, therefore, the evidence for the increase in the rate of maternal mortality should be examined critically.

In Table I the death rates from all puerperal causes per 100,000 population are given for the expanding death-registration area. The rate from all causes apparently increased from 13.3 in 1900 to 16.9 in 1921. From puerperal septicemia it increased from 5.7 in 1900 to a maximum of 7.4 in 1911, from which point it decreased to 6.8 in 1921. From other puerperal causes it increased from 7.6 in 1900 to 10.1 in 1921.

In this comparison rates expressed in terms of population are used because satisfactory birth statistics are not available throughout the period for the whole area. But the real risk of death from puerperal causes can best be measured by reference to the number of cases exposed to the risk, namely, the number of births. Since the birth rate is falling, a constant puerperal mortality as measured in terms of births would show a slight decrease if measured in terms of population; and hence these rates expressed in terms of population understate the increase in risk rates from puerperal mortality during this period. Furthermore, the slight apparent decline in the mortality from puerperal septicemia since 1911 may be the result of a stationary or even slightly increasing mortality from puerperal septicemia masked by the falling birth rate.

TABLE I.

TREND OF MORTALITY RATES FROM PUERPERAL CAUSES, EXPANDING DEATH-REGISTRATION AREA, 1900-1921.

Year.	Deaths from puerperal causes, per 100,000 population.		
	Total	Puerperal septicemia	Other puerperal causes
1900	13.3	5.7	7.6
1901	13.7	6.0	7.7
1902	13.0	5.7	7.3
1903	14.0	6.1	7.9
1904	15.3	6.9	8.5
1905	14.9	6.8	8.1
1906	15.1	6.2	8.9
1907	15.6	6.8	8.9
1908	15.7	7.0	8.7
1909	15.3	6.7	8.6
1910	15.7	7.2	8.5
1911	16.0	7.4	8.6
1912	15.0	6.5	8.5
1913	15.8	7.2	8.7
1914	16.0	7.1	8.9
1915	15.3	6.3	9.0
1916	16.3	6.7	9.6
1917	16.7	6.9	9.8
1918	22.3	6.5	15.9
1919	17.0	5.8	11.2
1920	19.0	6.6	12.5
1921	16.9	6.8	10.1

With the possible exception of mortality from puerperal septicemia since 1911, the figures indicate a marked increase in maternal death rates during the twenty-year period covered by the statistics. Before definite conclusions are drawn as to the extent of this increase or as to the real trend in puerperal mortality, the influence of the factors must be considered: (1) the expansion of the registration area, (2) the decrease in the birth rate, and (3) improvements in certification of cause of death.

Since these figures relate to the expanding death-registration area, the first questions which must be answered are, How much, if any, of the apparent increase is due merely to the addition to this area of states with higher puerperal-

a. A summary of a chapter in a report on maternal mortality, by Robert M. Woodbury, to be published by the U. S. Children's Bureau.

mortality rates than those in the original area, and how much is due to an increase in mortality rates in the original or in the added areas? In 1900 the death-registration area included 40.5 per cent of the population of the United States; in 1920 it included more than twice as large a proportion, 82.2 per cent. A study of the mortality rates in the original registration states (including the District of Columbia but excluding registration cities in nonregistration states) and in states added during each year shows that the result of additions of new states to the area was to increase slightly the mortality rates from all puerperal causes in 1906, 1911, 1913, 1916, 1917, and 1919, and to decrease them slightly in 1908, 1909, 1910, 1914, 1918, and 1920 relatively to what they would have been if no additions had been made.

The influence of changes in territory may be eliminated in either of two ways: The first and simpler way is to study the trend of mortality in the original registration states of 1900. In this area the rate from all causes rose from 13.4 in 1900 to 17.5 in 1920. From puerperal septicemia it rose from 5.8 in 1900 to a maximum of 7.1 in 1911, and fell to 6.1 in 1920. From all other puerperal causes, however, it showed a continuous increase from 7.6 to 11.5 during the twenty-year period under review. These increases in each case are slightly less than the increases shown in the expanding area.

This method does not take into account, however, changes in rates in the states which were added to the original registration area. In most of the added states, but not in all, the rate from all puerperal causes was higher in 1921 than in the year of admission.

A method of taking into account changes in mortality rates within the added as well as within the original territory—giving to each change its due weight in the calculation—is as follows: The percentage of change in rate from each year to the next in the territory common to both years is first ascertained. The initial rate in 1900 is multiplied by the percentage of change from 1900 to 1901 in the territory common to both years; the result is then multiplied by the percentage of change from 1901 to 1902 in the territory common to these years; and similarly each successive result is multiplied by the corresponding percentage of change. The final result is a series of adjusted figures which measure the change in maternal mortality in the expanding area after the influence of differences in initial rates in the added states is eliminated.

The series of figures so constructed is compared in Table II with the rates in the expanding area and with those in the original registration states. A comparison of these three groups of figures shows that eliminating the influence of the expansion of the area gives a trend not far different from the trend of the rates from puerperal causes in the original registration states.

As for the second factor which must be considered before definite conclusions can be drawn, since the birth rate decreased during the twenty years from 1900 to 1920, the maternal-mortality rate, when expressed in terms of deaths per 1,000 births, would show a greater increase than when expressed in terms of deaths per 100,000 population. To estimate the influence of the fall in birth rate upon the apparent changes in rates of puerperal mortality, it is necessary first to ascertain the amount of this fall; with this information its influence upon the puerperal-mortality rate as stated in terms of population can easily be calculated.[b]

The chief difficulty in making a correction for the fall in birth rates is to ascertain the rates themselves. The registration of births in many of the states composing the death-registration area of 1900 is incomplete, and statistics based upon

b. If B_1, B_2 are birth rates in different years, and $b = \frac{B_2}{B_1}$ (*i.e.*, the proportion that the second birth rate is of the first, and p_1, p_2 are the rates of puerperal mortality per 100,000 population in the same years, then if p_2 is divided by b the result will be comparable with p_1 so far as any change in birth rate is concerned.

TABLE II

TREND OF MATERNAL-MORTALITY RATES, U. S. DEATH-REGISTRATION AREA, 1900-1921.

Year	Maternal-mortality rates per 100,000 population		Ratio to 1900 rate [3]		Index number of rates in expanding area [4]
	Expanding death-registration area [1]	Original death-registration States [2]	Expanding death-registration area	Original death-registration States	
1900	13.4	13.4	100.0	100.0	100.0
1901	13.2	13.2	98.8	98.8	98.8
1902	12.6	12.6	94.0	94.0	94.0
1903	13.1	13.1	97.5	97.5	97.5
1904	14.9	14.9	110.8	110.8	110.8
1905	14.6	14.6	108.8	108.8	108.8
1906	15.0	14.4	111.9	107.1	106.9
1907	15.5	15.1	115.4	112.3	110.4
1908	15.5	14.3	115.9	106.9	111.5
1909	15.0	14.4	112.2	107.6	108.6
1910	15.4	15.1	114.5	112.5	111.8
1911	15.5	15.5	115.8	115.6	111.6
1912	14.4	14.1	107.7	105.4	103.8
1913	15.5	14.9	115.3	111.5	110.2
1914	15.4	15.4	115.2	114.5	110.6
1915	14.8	14.8	110.5	110.0	106.2
1916	16.0	14.8	119.6	110.0	109.9
1917	16.5	15.5	123.0	115.2	112.6
1918	22.1	20.5	165.0	153.1	152.7
1919	16.8	15.3	125.5	113.8	114.5
1920	19.0	17.5	141.5	130.8	129.3
1921	16.7	15.1	124.5	112.6	113.8

[1] Exclusive of cities in non-registration States.

[2] Includes the six New England States, New York, New Jersey, District of Columbia, Indiana, and Michigan.

[3] The 1900 figures=100.0.

[4] For method of calculation see preceding text.

registered births during the period from 1900 to 1920 are subject, therefore, to errors of varying size due to omissions. Perhaps the most satisfactory method is to estimate the average number of births for the five years preceding each census date (1900, 1910, and 1920) from the enumerated populations under five years and the statistics of deaths of children under five.[c] This method gives estimated birth rates for the original death-registration states of 25.6 in 1900, 24.0 in 1910, and 23.2 in 1920; the birth rate, therefore, appears to have decreased 9.5 per cent during these twenty years. Assuming that these estimates give a fairly accurate picture of the fluctuations in the actual birth rates during this period, Table III indicates the trend, after allowance is made for the falling birth rate, of maternal mortality in the original death-registration states from all causes, from puerperal septicemia, and from other causes.

As would be expected, the result of this correction is to make still larger the apparent increase in mortality from puerperal causes. The rapid fall shown in the crude death rates from 1900 to 1902 appears to be caused in large part by the markedly lower birth rates in the years 1901 and 1902 as compared with that in

c. The number of births during the five-year period prior to the date of the census can be approximated by adding to the enumerated population under five years the number of children born during that period who died prior to the date of the census. The latter number is approximately equal to the sum of (1) infants who had died under one year of age in the four years prior to the date of the census and 71 per cent of those who had died under one year of age in the fifth year before the date of the census; (2) children who had died at one year of age during the three years prior, and 59 per cent of those who had died at one year of age in the fourth year prior to the date of the census; (3) children who had died at two years of age during the two years prior, and 53 per cent of those who had died at this age in the third year prior to the date of the census; (4) children who had died at three years of age during the year immediately prior, and 52 per cent of those who had died at this age in the second year prior to the date of the census; (5) 52 per cent of the children who had died at four years of age in the year immediately prior to the census date. (For method see United States Life Tables, 1890, 1901, 1910, 1901-1910, p. 340.) By this method estimates of births were made for the periods 1895-99, 1905-09, 1915-19; the deaths under five years in the years 1895-99 were estimated from those in the period from 1900-04 by reducing them in the same proportion that the estimated number of births in 1895-99 was less than the estimated number of births in 1900-04. From these figures birth rates for each year from 1900 to 1920 were calculated on the assumption of a uniform rate of fall; these were then modified to take account of fluctuations in the birth rate from year to year by multiplying by a factor found by dividing the actual number of registered births in each year by one-fifth the sum of the actual number of registered births in the five-year period in which the particular year was the middle one. In this calculation no allowance was made for omissions from the census population under five years nor for variations in the proportion of such omissions.

TABLE III

TREND IN MATERNAL-MORTALITY RATES AFTER ALLOWANCE IS MADE FOR FALLING BIRTH RATE, 1900-1921; U. S. DEATH-REGISTRATION STATES OF 1900.

Year	Trend in birth rate: 1900 rate=100.0	Trend in death rates: 1900 rate=100.0.					
		All puerperal causes		Puerperal septicemia		Other puerperal causes	
		Crude figures	Adjusted for falling birth rate	Crude figures	Adjusted for falling birth rate	Crude figures	Adjusted for falling birth rate
1900	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1901	96.5	98.8	102.4	95.3	98.8	101.4	105.0
1902	96.1	94.0	97.9	91.8	94.5	96.5	100.4
1903	97.4	97.5	100.2	94.0	96.5	100.2	102.9
1904	95.8	110.8	115.6	112.2	117.1	109.6	114.5
1905	93.6	108.8	116.2	109.9	117.4	107.9	115.3
1906	95.8	107.1	111.8	100.3	104.7	112.3	117.1
1907	97.0	112.3	115.8	111.6	119.6	112.8	116.3
1908	97.4	106.9	109.7	106.3	109.1	107.4	110.2
1909	92.6	107.6	116.2	106.1	114.6	108.7	117.4
1910	93.8	112.5	120.0	116.5	124.3	109.5	116.7
1911	94.3	115.6	122.6	123.3	130.8	109.8	116.4
1912	93.4	105.4	112.9	103.3	110.6	107.1	114.6
1913	92.4	111.5	120.6	113.5	122.8	109.9	119.0
1914	93.8	114.5	122.0	113.3	120.8	115.3	122.9
1915	92.8	110.0	118.5	102.4	110.3	115.7	124.7
1916	92.3	110.0	119.2	105.6	114.4	113.3	122.8
1917	95.0	115.2	121.2	110.4	116.2	118.9	125.1
1918	94.0	153.1	162.8	97.2	103.3	195.4	207.8
1919	86.5	113.8	131.6	89.7	103.7	132.1	152.7
1920	90.5	130.8	144.4	104.7	115.7	150.5	166.2
1921	91.2	112.6	123.4	105.1	115.2	118.3	129.6

1900, which was unusually high. The decrease in mortality from puerperal septicemia from 1911 to 1921, which in the crude figures appeared to be 14.8 per cent, was reduced, after allowance was made for the falling birth rate, to 11.9 per cent. The conclusion might be drawn that though, since 1911 at least, the mortality from puerperal septicemia in the original death-registration states has actually decreased, the trend of the rates from "other puerperal causes" appears even more definitely upward than would be inferred from the crude figures.

The improvement in the certification of causes of death during the period from 1900 to 1920 is the third factor which must be taken into account in determining whether the mortality from puerperal causes is actually increasing. The result of the campaign for obtaining more accurate reporting of causes of death and for querying unsatisfactory causes reported has been to make the statistics for the later years of the period more nearly correct than those for the earlier years.

So far as mortality from puerperal septicemia is concerned, the first inquiries put out directly by the Bureau of the Census to the physicians concerned related to deaths in 1911, and in that year the death rate from puerperal septicemia reached its maximum. Since in the changes made as a result of the inquiries the number of cases added to puerperal septicemia has always exceeded the number of cases subtracted from it, the decrease in the rate since that year points to an improvement in mortality from this cause. The real improvement is greater than appears on the face of the figures, because it is in part masked by the continual betterment of certification resulting from extension of the system of querying unsatisfactory certifications of cause.

The influence of the improvement in accuracy of certification, so far as the net additions made to puerperal deaths as a direct result of letters of inquiry to physicians are concerned, may be eliminated by subtracting the additions. The numbers of cases added are given in Mortality Statistics for the entire death-registration area for each year since 1911, with the exception of 1912, 1913, and 1918. But these numbers added were in no case over 3.5 per cent, a percentage which represents therefore the maximum correction for such additions.

This method of correction, however, obviously cannot eliminate additions resulting indirectly from the system of letters of inquiry because of the fact that physicians who have received such letters are likely to be more careful afterwards in reporting causes of death.

The influence of the increasing accuracy in certification which is reflected in a decrease in the proportion of deaths classified as due to ill-defined and unknown causes may be estimated and eliminated, so far as transfers from these indefinite to puerperal causes are concerned. In 1900 the proportion of deaths from ill-defined and unknown causes in the death-registration states was 3.8 per cent, whereas in 1920 in the same area it was only 0.2 per cent. In 1921 only 942 deaths in this area were classified as due to ill-defined and unknown causes, as compared with 13,199 that would have been so classified if the proportion that prevailed in 1900 had prevailed also in 1921. Of the deaths from these indefinite causes in 1900, 2.8 per cent were of women between the ages of ten and fifty years. Assuming that the same proportion of these were connected with pregnancy or childbirth as the puerperal deaths formed of the total at these ages from known causes (11.7 per cent), then it may be estimated that 0.33 per cent of the total deaths from ill-defined causes were maternal. On this assumption the number probably added to puerperal deaths by transfer from ill-defined causes has been estimated; but this correction reduces the index number for the later years, showing the trend of mortality from 1900 only from 1 to 2 per cent.

Neither of the preceding methods, however, takes account of improvements due to the campaign for better certification of causes of death, so far as they have reduced the mortality ascribed either to such poorly defined terms as septicemia and convulsions or to terminal conditions such as peritonitis and nephritis, the true or underlying cause of which may be puerperal. An estimate of the effect of such improvements in certification can be made on the following assumptions: First, that the excess in the actual number of female deaths at ages fifteen to forty-nine over the number expected—if the ratio of female to male deaths at these ages were the same as the average ratio of female to male deaths under fifteen and over fifty years of age—represents transfers from causes of death peculiar to women; and secondly, that 80 per cent of these were transfers from puerperal causes.[d] On the basis of these assumptions the total number of maternal deaths, including those ascribed to poorly defined terms and terminal conditions, in each year from 1900 to 1921 has been calculated; and in Table IV the rates based upon a comparison of these deaths with the estimated births are given to indicate the trend in maternal mortality after allowance is made for improvements in certification in these cases.

The trend in the maternal-mortality rates, after allowance has been made for transfers from these five poorly defined terms and terminal conditions and from ill-defined and unknown causes, is strikingly different from that shown in preceding tables. From all causes the trend appears to have been very slightly downward, the highest rate, with the exception of that for 1918 when influenza was a factor, being for 1900. The trend of mortality from puerperal septicemia, however, appears to have been sharply downwards throughout the period, the figures indicating a decrease of 36 per cent during these twenty years. From other puerperal causes the rates appear fairly uniform except in 1918, 1919, and 1920, when they were abnormally high.

The validity of these conclusions rests obviously upon the validity of the method of estimate of the number of puerperal deaths that were roughly classified in past

d. Of all deaths from ten to forty-nine years of age from causes peculiar to women 77.5 per cent were puerperal in 1900 and 80.1 per cent in 1920; 80 per cent is taken as a rough approximation to an average percentage.

TABLE IV

ESTIMATED TREND IN MATERNAL-MORTALITY RATES BY CAUSE OF DEATH, AFTER ALLOWANCE IS MADE FOR IMPROVEMENT IN CERTIFICATION OF CAUSES OF DEATH; U. S. DEATH-REGISTRATION STATES AS OF 1900, 1900-1920. [a]

Year	Estimated death rates per 1,000 live births.					
	Puerperal causes		Puerperal septicemia		All other	
	Rate	Trend: 1900 rate=100.0	Rate	Trend: 1900 rate=100.0	Rate	Trend: 1900 rate=100.0
1900	8.5	100.0	4.3	100.0	4.2	100.0
1901	8.0	94.3	3.7	86.8	4.3	101.9
1902	7.4	86.8	3.6	83.2	3.8	90.4
1903	7.0	82.1	3.3	78.2	3.6	86.1
1904	7.9	92.6	3.9	91.0	4.0	94.2
1905	8.0	94.2	3.8	88.1	4.2	100.5
1906	7.1	83.5	3.2	73.8	3.9	93.2
1907	7.2	85.0	3.3	77.8	3.9	92.3
1908	6.7	79.2	3.0	71.1	3.7	87.4
1909	7.0	82.6	2.9	69.0	4.1	96.4
1910	6.9	81.0	3.1	72.8	3.8	89.4
1911	7.0	82.5	3.2	75.4	3.8	89.6
1912	6.5	76.6	2.7	63.0	3.8	90.3
1913	6.8	80.0	2.9	67.6	3.9	92.4
1914	7.1	83.2	2.9	68.0	4.2	98.5
1915	6.9	81.2	2.6	60.9	4.3	101.8
1916	6.7	78.8	2.7	63.0	4.0	94.8
1917	6.6	78.3	2.8	64.8	3.9	91.9
1918	9.3	109.2	2.5	58.2	6.8	160.8
1919	7.5	88.2	2.4	57.4	5.0	119.5
1920	7.8	91.8	2.7	64.0	5.1	120.0

[a] For method of calculation see text. The allowance made is for estimated additions to puerperal deaths from ill-defined and unknown causes and from peritonitis, septicemia, convulsions (unqualified), acute nephritis and Bright's disease.

years as due to poorly defined and terminal, rather than to causal, conditions. In support of the method it should be mentioned that marked decreases in mortality from "septicemia," "peritonitis," and "convulsions (unqualified)" have occurred during the twenty-year period, and that, in part at least, deaths from these causes have been transferred to puerperal septicemia and other puerperal causes. Furthermore, a decrease in maternal mortality would be expected in view of the experience of other countries and especially in view of the marked improvement in standards of medical education and medical licensure in this country.

The figures, therefore, raise a strong presumption that the mortality from puerperal septicemia actually decreased throughout the period from 1900 to 1920, while that from other puerperal causes remained approximately the same.

THE RELATION OF THE HOSPITAL AND DISPENSARY TO THE PUBLIC HEALTH MOVEMENT

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Read before the Public Health Administration Section at the Fifty-second Annual Meeting of the American Public Health Association, Boston, Massachusetts, October 8, 1923.

WHY HAVE the institutional administrators who run hospitals and the health officers who run health departments generally lived quite apart from one another? To the health officer the hospital superintendent has too often been regarded as a shut-in autocrat, interested chiefly in the prices of beef and of adhesive plaster; to the hospital superintendent the health officer is too often a member of that large, troublesome body known as city officials, possibly thought of as politicians. He is known to the hospital superintendent in a practical way because of his periodical demands for certain vexatious reports and statistics. The walls about these shut-ins are becoming less opaque and each group is seeing how the other fellows work. As they get together, the discovery is made that health officers and hospital superintendents are real fellows.

The time may have been when the hospitals and clinics needed to have nothing to do with public health work. That time is long past. The two groups of professional men and women concerned with closely related activities still remain with few locally organized channels for mutual understanding, or for the growth of knowledge of one another's problems and technique. Nationally, however, through the American Public Health Association and the American Hospital Association, there is no such condition. The channel exists and the time to utilize it has arrived.

Radical transformations have occurred during the present generation in health departments, hospitals, and dispensaries. The hospital, once a final resting place for sick paupers, has now become a scientific medical institution for rich and poor as well as the classes in between. The dispensary or clinic is no longer a center simply doling out pills and potions to the poor. It now provides specialized and skilled medical service to a considerable percentage of the population. Both hospital and clinic are assuming important functions in preventive, in addition to curative, medicine. Numerically there are probably more clinics aiming to prevent than to cure disease. The growth in this field in the past twenty years, and particularly in the last ten years, has been extraordinary in the fields of tuberculosis, venereal disease, child health, maternity, mental hygiene, cardiac diseases, diabetes, endocrinology, and the like.

The same developments in medical science which have been chiefly instrumental in transforming the hospital and the clinic have likewise transformed public health work. The period of primary interest in drains and shotgun quarantines gave place to a stage when the laboratory and the germ held the center of interest, and that in turn has opened into a period when the education of the individual in the hygienic conduct of life has come into the foreground. The hospital, the clinic, and public health work are now alike in being community agencies, no longer confined to special interests or special classes. They are alike in that they have a common basis in scientific medicine. They are alike in possessing a common subject matter in many of the chief diseases which afflict mankind. The hospital caring for the acute bed stage of illness, the clinic providing for the ambulatory stages which precede and follow bed care, the health department with the medical and human problems of environmental control and personal hy-

gene, which precede and which pervade all stages—these points of view in dealing with disease are not opposed, but are supplementary to one another, and none can function effectively without the others.

There is an ever increasing interdependence of the hospital, the clinic, and the health work of the community. We must be on the outlook for duplication of effort. It is just as feasible to treat contagious disease in a division of a general hospital, and do preventive work in a general dispensary, as it is for a health department to do general hospital work or maintain special clinics. Which is the more effective? the more economical? What division of the field should there be? This is the puzzle upon which thought needs to be centered locally and nationally. The town hospital with an adequate laboratory and a competent man may be able to absorb the increasing demands upon the health department for diagnostic service, or vice versa, to the advantage of both. This advantage may be in quality or in quantity. Certainly it is economically sound to eliminate duplication and reduce overhead. Manifestations of the growing interdependence of hospital, clinic, and public health work are to be seen in the treatment of contagious diseases in divisions of general hospitals; the management of general municipal hospitals by health departments, as well as the running of preventive and treatment clinics by both groups in tuberculosis, venereal disease, and infant welfare. Who shall press forward in the rapidly growing fields of prenatal work, mental hygiene, cardiac disease, dentistry, and the correction of eye, nose, and throat defects among children?

Certain it is that we have heard in recent years from high medical and health authorities that in rural counties and towns the hospital and clinic should be community institutions, serving the medical profession and the public as diagnostic and therapeutic centers. Such a provision of laboratory and other facilities which the private practitioner and health authority often lacks would unite all the medical and health forces of the area. As such centers are realized in practice there are bound to be many readjustments of present procedure which will unite many functions now administratively separated between health work and institutional medicine.

Both public health officers and the administrators of hospitals and clinics have failed to recognize the desirability of close coöperation in the performance of many of these activities, or in their important common task of educating the general public. How often have hospitals turned a deaf ear to the suggestion that certain clinics be established, and thus forced public or private health agencies to establish them independently, uneconomically, and sometimes unsuccessfully? Yet, as a general principle, clinics run as out-patient departments of hospitals can, in most fields of preventive medicine, be made more efficient and much more economical than clinics run independently. How often have health officers failed to recognize the opportunities afforded by already established hospitals and clinics for practical service to the local health work, and therefore failed to seek and win coöperation?

Has this been due to an incorrect method of approach, or to a none too cordial reception? Is not the situation one that requires more than "coöperation"? Should not the health officer think in terms of buying service by specification from the hospital administrator who has service to sell? Is it not possible for the public official, charged by law with certain definite duties, to develop an approach over the existing professional ground that will parallel his method of doing business with some of the semiprofessional or commercial organizations with which he has to deal?

In contrast to this, is it not reasonable to suppose that the administrator of a medical institution as a semipublic official will accept an approach over this common

professional ground? Can we not assume that he will see himself, as the head of a service corporation which has a facility to be utilized?

Many health officers have had experience in the medical institutional field and are in a position, without being arbitrary, to write specifications covering the service required to round out a health job in the most effective and economical way. Many institutional administrators have to-day had sufficient contact with and experience in preventive medical work to understand such specifications, and to decide whether or no the specified service can be rendered.

Were both groups to give sufficient thought to their common interests, it would seem reasonable to suppose that fear of dual responsibility and relaxation of authority would be eliminated by the very process of working out adequate community health service. Fuller recognition is being given to-day to the constantly growing interdependence of public health work and the job of the hospital and clinic. We believe that the time has arrived when in a national way the American Public Health Association and the American Hospital Association can jointly, through appropriate committees, formulate those fundamental policies which may be essential to the proper solution of the problems facing us as workers for better health.

There are enough examples of integrated effort between health departments and medical institutions to warrant further concerted action between the hospital and health associations at the present time. There is a growing realization of the responsibilities and opportunities facing the health and hospital workers who, in the last analysis, make up one major group engaged in solving the complex problem of health production through sickness prevention and disease elimination.

NOTE.—See Association News in this issue of the JOURNAL for a summary of developments since the reading of this paper.

SECOND REPORT OF THE COMMITTEE ON MOSQUITO CONTROL

Presented to the Sanitary Engineering Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, Massachusetts, October 8, 1923.

THE YEAR 1923 has witnessed a very great extension in mosquito and malaria control activities, as marked by an increase in the area under control and the population protected. This is notably true in the southern states and those southwestern states in which malaria and other mosquito-borne diseases are an important public health problem. Based upon reports received from eleven southern states, all of which have been conducting mosquito control work, there has in every state been a considerable increase in the personnel engaged in this work and the population protected. In seven of the eleven southern states conducting mosquito control work, there has been reported to the state health departments approximately 200,000 cases of malaria. It should be noted that in a majority of these states complete reporting of malaria cases is not secured; therefore, the above figure probably does not represent more than 25 to 30 per cent of the total number of cases each year.

Reports from seven southern states show that intensive mosquito and malaria control activities were conducted during 1923 in two hundred and forty-six municipalities. Work is being conducted on a county-wide basis in fifteen counties in eleven southern states, and in a number of states partial county-wide work is being done. Many camps and industrial centers carry on mosquito control measures, as the industries realize the economic value of mosquito control work.

The St. Louis Southwestern Railroad, operating through Missouri, Arkansas, and Texas, has continued its efforts to eradicate malaria along its lines. Surveys have been made on the Missouri, Pacific and Rock Island lines in those states where mosquitoes are most prevalent, and reports at this time indicate that these railroads will inaugurate

mosquito control measures, primarily for the purpose of preventing malaria. Surveys are in progress on other railroads, and it is expected that in a few years most of the larger railroads in the South will conduct active measures to prevent malaria.

No new methods of control worthy of mention have been introduced during the present year. It has been observed that creosote compounds such as are used in treating heavy timber are mosquito repellents, and some use has been made of this information in affording protection against mosquitoes. Major drainage operations are needed in the Mississippi delta region, where mosquitoes are most prevalent, on a greater scale than at present exists. This is particularly necessary if the rural areas are to be afforded adequate protection. There has been during the past year a marked increase in the amount of drainage work in this region, and it is expected that each year will witness a greater area brought under protection, since the soil is unusually fertile.

Appropriations made by the states to the state health departments for mosquito control and malaria prevention are in most instances very small and do not afford sufficient personnel to expand the work so as to meet the popular demand for it. It is expected, however, that public sentiment will in the near future correct this condition, and that following more generous appropriations, both on the part of the state and its political subdivisions, far better results will be secured.

M. Z. BAIR, *Chairman.*

DITCHING AND PUMPING

Discussion by Lewis E. Jackson.—Mosquito control work in New Jersey was started on a small scale in 1903, and continued spasmodically until 1912, when the means for the establishment of an efficient fighting force was furnished by the enactment of a state law providing for the appointment by Supreme Court Justices of County Mosquito Extermination Commissions, composed of representative business and professional men, empowered to eliminate the breeding of mosquitoes wherever found.

During 1923 ten counties actually engaged in control work will have expended $300,000, effecting a large amount of permanent work, such as the installation of new drainage systems, construction of dikes and tide gates, enlarging of pumping plants, etc. Over two million people have been afforded protection at the average per capita cost of 15 cents. The salt marsh problem is the principal one of the state because of the possible long range of flight of the salt marsh species of mosquitoes. With the close of the present season a total of approximately 5,000 miles of drainage ditches, on the basis of 10 inches in width, will have been cut in the salt marshes of the state, 300,000 acres in extent. With the completion of the ditching work there will be about 10,000 miles of ditches to be maintained. It is estimated that 20 per cent of these ditches will have to be cleaned once in two years, and 80 per cent once in three years. The State Experiment Station has under construction a new type of cleaning machine. When certain improvements of the machine now under construction are worked out it is believed that the cleaning of ditches may be accomplished at the remarkably low cost of less than 1 cent per lineal foot.

Decided progress has been made in the construction of the tide gates and dikes. Electric pumps have been employed in Hudson County for several years for the control of low-lying enclosed marsh.

Pumping stands alone as an economic and efficient means of draining low-lying, enclosed areas from which there is no natural drainage and also low areas controlled by tide gates from which the runoff is slow and absorption and evaporation slight. Hudson County, New Jersey, is probably in the unique position of being the only mosquito fighting unit employing permanent pumping plants in its salt marsh drainage operations. One area of 1200 acres of enclosed marsh, the surface of which is one foot below mean low tide, and from which there is of course no drainage runoff, is kept under control throughout the breeding season by the use of two electrically driven centrifugal pumps and an extensive system of ditches. The pumps are of 12 inch and 10 inch diameter respectively with a combined capacity under average load of 4,000 gallons per minute.

The operation of the 12 inch pump, with an average load capacity of 2,200 gallons per minute, controlling an area of 900 acres, into which practically no upland drainage runs, covering a ten weeks period at the beginning of the season, at which time the marsh is flooded with the winter accumulation of water, resulted in the removal of six inches of water from the entire surface of the tract and the lowering of the levels in 225,000 feet of

ditches 11 inches below the surface of the meadow. In this period the pump was operated 1,490 hours and lifted off the area 197,000,000 gallons of water.

During the first eight weeks the pump was run twenty-four hours a day with an average cost per hour as follows: Power, 24 cents; labor, 10 cents; lubrication, etc., 1 cent. The cost per million gallons of water pumped is $2.65. During the remaining two weeks a schedule of eight hours per day was maintained, the per hour cost being the same, except that of labor which was 5 cents.

The original cost of the plant in 1915 was as follows:

15 H. P. Motor	$ 342.00
12" centrifugal pump, pipe and fittings	472.00
Installation, including concrete bases.	267.00
Feed line poles	36.00
Total	$1,117.00

A concrete house and sump were later added at a total cost of $1,075. The cost of the same equipment to-day is estimated at about 40 per cent increase.

After the removal of the winter accumulation of water, which is accomplished before the first brood of mosquitoes matures in the spring, a satisfactory margin of safety is easily maintained by running the pumps a part of each day, the water table throughout the entire area being frequently lowered to the bottom of the ditches which are 30 inches in depth.

Included in the pumping equipment there is also a 4 inch gasoline motor-driven permanent unit and a 6 inch electric unit reserved for emergency work. Pumping is of such great advantage where drainage is impossible or slow that a portable outfit composed of one 8 or 10 inch centrifugal pump with power unit mounted on a motor truck chassis for use wherever needed would prove a valuable piece of equipment in any part of the country.

There is need for an efficient larvicide where the permanent elimination of breeding places is impracticable. Many experiments have been made in New Jersey but no satisfactory preparation has been found. The discovery of such a larvicide which will thoroughly emulsify with both fresh and salt water, and have killing power in a solution, at a price which would make its use economical as compared with fuel oil, would be a boon to the temporary control measures which will always form a part of maintenance work.

Arousing public interest and securing greater activity on the part of municipal governments and local boards is frequently one of the greatest problems in the control of mosquito breeding on private property in thickly settled communities. Although each place is perhaps small in area, in the aggregate the many places constitute a considerable danger. Much progress can be made by securing the direct coöperation of such bodies as agricultural experiment stations, departments of conservation and development, local boards of health, women's clubs, etc., through systematic publicity work. Such publicity has aided the cause in New Jersey to a considerable extent, both in obtaining initial appropriations for the work in general, and in special cases where greater interest or activity on the part of the public in certain phases of the work has been desired.

DIKING AND TIDE GATING

Discussion by Russell W. Gies, S.E., M.Sc.—Among the advances which have been made in mosquito work in recent years which are of interest particularly to sanitary engineers, is the practice that is being developed in regard to diking and tide gating of salt marsh land for mosquito control purposes.

The hundreds of thousands of acres of salt marshes along the coastal areas of the United States constitute the largest single mosquito breeding area and one of the most difficult that we have to deal with.

The use of dikes and tide gates dates back to antiquity. The coastal countries of Europe, particularly along the North Sea, have been embanking and diking their salt marshes for more than 700 years. In our own country the use of dikes and tide gates has been going on for more than 200 years.

Practically all of this work, until recent years, has been for agricultural reclamation purposes, so that it is very interesting to notice where diking and tide gating work for mosquito control purposes, varies from the standard practice in agricultural salt marsh reclamation. In general, it may be said that the dike and tide gate work for mosquito control purposes does not have to be nearly so substantial nor so intensive as that for agricultural reclamation, and the cost, therefore, per unit of work done, is not so high as for agricultural reclamation.

Probably the largest amount of diking and tide gate work for mosquito control purposes that has been done in the United States has been the work in New Jersey, and a more or less standard practice is being worked out there in doing this work. The dikes used in most of the work in that state are fairly small, averaging seven feet in width at the bottom, three feet high, and three feet wide at the top. Most of them are made of sod built up in pieces with the grass side outward. The grass roots, as soon as the dike is finished, entwine or grow together so that the dike becomes one solid piece. In some cases a mud core has been used in the center of the dike, but in other cases no mud core has been used with seemingly very little leakage through the dike, if the work has been well done.

A few dikes have been made by dredging with a small floating dredge, the material in most cases being taken from the inside of the dike. Any such small dikes, if in an exposed location, will need to be protected against wave action by placing on the outside brush, wood, rip-rap, paving, or concrete blocks. Considerable protection can be afforded by placing the dike at least 100 feet away from the bay or stream along which it is located, this foreshore being universally used along New Jersey.

In constructing the dikes, we have usually allowed for a shrinkage of from 15 to 30 per cent of the height when final settling occurs.

One of the greatest differences between dikes for mosquito control purposes and dikes for agricultural reclamation, is the fact that in the former case we are not trying to exclude the salt water entirely, in order to keep up the continual growth of the meadow and prevent shrinkage.

Our aim primarily is to keep the water at least 18 inches below the surface of the meadow in order to prevent mosquito breeding in the thousands of holes existing over the surface of the marsh. An elevation of the height of this water table would be much too high for general agricultural reclamation although it is sufficient for mosquito control purposes.

The practice has been to keep the gates open, so that the tide can freely enter, for about two (2) weeks each month during the summer, and entirely open during the winter months to keep up the fish supply in the ditches, and thus destroy mosquito breeding, and to prevent shrinkage, which differs entirely from agricultural reclamation where the gates are always working. However, in sewage-polluted meadows, it is preferable to keep down the water table below the bottom of the ditches as we have found that opening the gates during part of each month will not bring sufficient fish into the polluted water to destroy mosquito breeding, nor will breeding be swept out by the mechanical action of the tide.

It is advisable to have a large storage capacity in the ditches to take care of accumulated rainfall and seepage, and this should be as near the tide gate or sluice as possible.

In agricultural reclamation the best practice calls for about 7 per cent of the total area of the meadow to be in ditch, but for mosquito control purposes, where it is not necessary to discharge accumulated rainfall and seepage as rapidly, 2 to 3 per cent in ditch would be sufficient.

The ditches in use on mosquito control dikes and tide gate projects are of the deep narrow variety, varying from 10 to 20 inches in width and from 24 to 30 inches in depth, with large outlet ditches as necessary. Ditches and sluices are designed to care for one quarter of an inch of rainfall each 24 hours.

We have found that about 1 square foot of effective cross section for each 20 acres drained to be a good average, this being a smaller cross section than the best practice calls for in agricultural reclamation.

Our sluices or tide gates are wooden gates or flaps hinged on the top and placed on or in the sluiceway which opens when water presses on the inside of it, but which closes when water presses on the outside. The gates have been designed in two styles, the design with the gate hung in the center of the flume with a manhole above it being more generally accepted. We are also trying out a tandem gate with two flaps placed one in back of the other, with the expectation of the possibility of jamming open being reduced to a considerable extent.

At the present time gates totaling approximately 1200 square feet of cross section have been installed on the New Jersey salt marshes, and are keeping down mosquito breeding in general, better than the marshes that are merely ditched.

THE IODINE CONTENT OF MICHIGAN WATER SUPPLIES

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THIS STUDY of the iodine content of the water supplies of Michigan is being conducted in connection with a survey of the goiter situation in that state. Outside of Switzerland, Michigan probably has the highest goiter incidence of any region in the world. That this high incidence is due to a lack of iodine in the soils, foodstuffs, and water supplies has been the supposition of those interested in the prevention of this disease. Marine and Kimball,[1] in their most excellent work published in the *Western Reserve University Bulletin*, state: "After consideration of all of the various substances, agents, and theories that have been put forward as having a rôle in the etiology or cause of goiter, we at present must fall back upon the view that goiter is a compensatory reaction arising from a relative or absolute deficiency in iodine." This study was started, therefore, for the purpose of proving conclusively the above statement and showing the relationship of iodine to the prevalence of goiter in this state.

McClendon[2] states that sea water contains 0.05 mg. of iodine per liter, and has calculated that the seas of the earth hold in solution as salts about sixty billion metric tons of this element. The other important known sources of iodine are niter deposits of Chili, ash of sea weeds, salt brines, oil-well waters, certain mineral waters, and certain types of soils and rocks.

During a recent survey by McClendon of the University of Minnesota the water of a number of the representative rivers of the country was analyzed for iodine. A map of the United States, prepared by him (see Fig. 1), shows that the country can be divided into more or less definite regions as regards iodine distribution, and that Michigan lies in the belt of the lowest iodine content. Our own observations indicate that there is little, if any, iodine in the surface waters of the state. Considering the solubility of iodine compounds, one can draw the conclusion that the soil of this region is deficient in the element. The most important natural source of iodine, then, if there is such a source, would be in the ground waters. Hence, most of our time was spent on the study of this class of potable waters.

The water survey was instituted to precede a study of goiter as a public health problem in Michigan. The results of the medical survey have been published elsewhere.[3]

SELECTION OF THE METHOD

Numerous methods for iodine determination are to be found in the literature, but the majority of them were discarded for the reason that they were not applicable to our conditions. Our requirements can be briefly outlined as follows: First, the method should be of such a nature as to give comparable results with a large number of different types of water. There are many substances in ground waters which interfere with the ordinary determination and it would be necessary to remove them before the determination could be made. The other halogen salts (chlorides and bromides), certain sulphates, sulphites, and sulphides, ferrous and ferric iron, and organic matter are the important agents which interfere. The second requirement was a rapid determination with a minimum of apparatus. The third, the method must be accurate for minute amounts. And fourth, it must not be so accurate and so complicated as to be inconsistent with the results desired. That is, iodine in amounts below one part in a billion parts

of water would be so small as to have no bearing on the goiter situation.

Many of the methods found in the literature involve the use of potassium iodide and the subsequent titration of the free iodine with sodium thiosulphate. These methods were ruled out because of the effects of the constituents of certain waters on the iodide added, causing a liberation of iodine, and also because of the instability of the extremely weak thiosulphate necessary. What the constituents of the water were which caused this trouble was not determined definitely, but it was experienced mostly in sulphur waters or in waters which were highly colored with iron compounds, either organic or colloidal. For the determination of such minute amounts or the entire absence of iodine, it was thought best to avoid the addition of potassium iodide.

The method finally adopted was one produced by using the principle suggested by M. J. Dubiel,[4] with certain additions and changes to satisfy our conditions. The following is a brief report of this method:

METHOD OF IODINE DETERMINATION

A chloride determination is first made on the raw water. Fifty liters of the sample are evaporated to a small volume after the addition of about six grams of normal sodium carbonate. If the chloride content is greater than about 60 or 70 parts per million, evaporation is stopped when a moist saline mass is obtained. A considerable quantity of 95 per cent alcohol is added to the evaporated solution and the mixture filtered. The residue is boiled three times with 95 per cent alcohol, filtered and the filtrates combined. Two or three drops of strong potassium hydroxide solution are added and the alcohol removed by evaporation. The residue is dissolved in a little water and the above repeated if necessary until the bulk of the chlorides are removed. If the chloride content is below 70 parts per million, the extraction with alcohol is omitted.

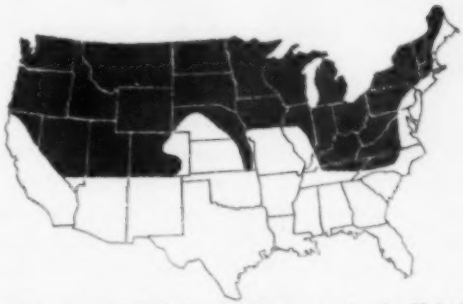

FIG. 1. The iodin in drinking water in the United States: In the black area, waters contain from 1 to 22 parts of iodin per 100,000,000,000 parts of water; in the white area, from 23 to 18,470 parts. Some old analyses have shown even higher values in mineral springs in the southern half of California.

The volume is adjusted to about 100 c.c. in a 250 c.c. glass-stoppered flask. If not already alkaline, 4 or 5 c.c. of a saturated sodium bicarbonate solution is added. A solution of potassium permanganate (25 grams per liter) is added drop by drop until the permanganate color persists. About 5 c.c. of the permanganate solution is added in excess, and the flask placed in a dish of ice and the contents cooled below 10° C. Three c.c. of carbon disulphide are then added and then 5 c.c. of concentrated sulphuric acid, drop by drop, avoiding a rise in temperature. During the addition of the sulphuric acid the flask is shaken constantly to insure the iodine thus freed being taken up by the carbon disulphide.

After the addition of the acid is complete, the excess permanganate is destroyed by a careful addition of hydrogen peroxide and the carbon disulphide drawn off by means of a separatory funnel. If the iodine is present in comparatively large amounts, small portions of carbon disulphide are added, thoroughly shaken with the solution, and drawn off until the extraction of the iodine is completed, or until the last portion of the disulphide shows no trace of pink. These portions are combined with the first extraction and the amount of iodine in the total determined colorimetrically by comparison with a standard carbon disulphide solution prepared by the same method from a solution containing a weighed amount of

potassium iodide. A DuBoscq colorimeter with small cups can be used in the comparison of the colors.

If bromides are present, a brown color is imparted to the carbon disulphide, in which case a weak solution of potassium sulphocyanate is added, drop by drop, with constant shaking until the color is removed or is replaced by the pink color of the iodine. The presence of chlorides does not interfere with the determination.

The above method gave accurate results to one part of iodine in a billion parts of water, meaning that the color produced by amounts of iodine as low as .05 mg. in 1 or 2 c.c. of carbon disulphide could easily be duplicated. As is true with most colorimetric analyses, the determination could be more accurately made in dilute solutions. Where amounts of iodine above 5 parts per billion were present, the volume of carbon disulphide was increased correspondingly.

In order to obtain comparable results fifty liter samples were used in almost all cases. This amount gave accurate duplicate determinations and minimized the evaporation difficulties. The evaporation was carried on in four dripping pans over open burners until a volume of about one liter was obtained. The remaining solution was then taken down to the required volume on the water bath. Over fifty liters a day could be evaporated in this way.

Reports of no iodine found were based on the results of the analysis of fifty liters. Traces might have been found had larger volumes been used, but would have been insignificant.

OBSERVATIONS

Contrary to expectations, there are a number of places in the state where the ground water supplies contained some iodine. These places, as is shown by the map (Fig. 2), include a strip of counties running northwest and southeast between and including Midland, Macomb, and Saginaw. Not all of the supplies of these counties contain iodine, but in general they are the high iodine counties of the state and at no other place have we found iodine above 3 parts per billion. Within this territory are a number of high and low content supplies but no definite line can be drawn between them. Just why this region should be so spotted has not as yet been determined and this is the next problem to be solved, with the cooperation of the State Geologist. In almost all cases the high iodine waters come from deep wells, while the shallow wells are usually deficient.

No iodine was found in any of the ground water supplies of the northern peninsula nor the upper part of the lower peninsula. Starting at the row of counties of which Midland is one, and from there south, iodine was found in a greater or lesser degree. These localities are shown in a general way by the accompanying map. Owing to the spotted condition of the findings, however, it is impossible to show them in detail. For example, the iodine content of the wells at Mt. Clemens averaged 24 parts per billion, while eight miles away, at Romeo, no iodine was found.

None of the surface waters examined showed a trace of iodine except those of the Great Lakes. In the examination of the Great Lakes waters larger volumes were used in order to find smaller amounts and show the variation from north to south. These results are also shown on the map.

A few of the mineral waters and brines have been examined and show a great variation, depending upon location and depth. A mineral water at Mt. Clemens showed 3,100 parts per billion, while the brines at Midland contained from 200 to 300 parts.

Interest is attracted by the fact that although iodine increased with chlorine there was no definite ratio between the two, but seemed to depend upon the location and depth from which the sample was taken. Bromides were also present where iodine was found, but no attempt

FIG. 2. The iodin in ground water supplies in Michigan, shown in parts per billion. No iodin was found in the supplies on the upper peninsula or the upper part of the lower peninsula. Not all of the supplies examined from the heavily shaded area at the right showed iodin.

was made to determine the bromine quantitatively.

The above observations and the fact that the iodine waters came mostly from deep wells, lead to the conclusions that the source of iodine is from the salt deposits underlying the various parts of the state, that the iodine is not present to the same extent in these deposits, and that it is probably present in the form of the iodides or iodates of the alkali or alkaline earth metals, sodium, potassium, calcium, or magnesium.

This preliminary survey has laid a foundation for three other related, yet quite distinct problems.

First, the establishment of a normal iodine content for every district in the state.

Second, an intensive survey of sections

of the state showing variability of iodine content in the water supply, notably Macomb and Midland Counties, and the establishing of the geological reason for this variability.

Third, the examination for and determination of the iodine content of salt brines, with the view of establishing a minimum limit for iodine content of table salt which will be necessary to actually prevent enlargement of the thyroid gland.

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THE PLACE OF THE TEACHER IN A SCHOOL HEALTH PROGRAM

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Read before the Child Hygiene Section at the Fifty-second Annual Meeting of the American Public Health Association at Boston, Massachusetts, October 9, 1923.

ANY health program is a dichotomous affair, consisting of health service and health education. They are separate but reciprocal, distinct but dovetailing. Each has its own technique, the acquiring and perfecting of which is the work of a lifetime. There is no question of relative importance or ability. The difference is one of kind, not of degree. Until the present wave of interest has time to bear fruit in a larger supply of teachers and physicians who understand one another's problems, each will have to continue, more or less lamely, to help out in the other's field.

In discussing the place of the teacher in a health education program, let us carefully distinguish between that which is her lawful sphere, and that in which she may for the child's sake temporarily help out. We are agreed that rightfully her field is the educational phase of the health program.

In the confines of the present paper we will necessarily limit the discussion to the classroom teacher. This does not imply a lack of appreciation of the work of the home economics teacher and the physical education teacher, who between them are working out the solution of some of the knottiest health education problems. The function of the classroom teacher is, primarily, to instruct. This means the type of teaching that covers laboratory application of precept, which naturally includes:

1. The essentials of healthful living—health habits.

2. The essentials of the mechanism of the body and its operation.

3. The essentials of the healthful environment—both physical and mental; a sane school program as well as a sanitary water supply.

Here end the teacher's lawful duties so far as imparting instruction and securing application of the instruction in the daily life of the child. Within only a very few years the teacher has found herself confronted with the flat failure of her teaching of hygiene to function in health, and she has set her lips a trifle more firmly and assumed the burden of teaching health so that the child would do his laboratory work in the home and streets. This projection of her teaching into the street and home life of the child is the ultimate accomplishment in teaching. There is nothing, however, to compare with it in difficulty. Although it is being

done all over the country, there are protests that such teaching is only one more step toward pauperizing the home of responsibility; yet, for the child's sake such work is assumed, temporarily.

And now the teacher is getting additional requests from every angle of her contact with the child—"While you are doing that, why not do this?"—till many a harassed teacher is entirely unable to distinguish this from that. As one of them said, "I could get along beautifully if it weren't for my regular work." Then when "this" and "that" are exchanging places in the teacher's daily time-table, up crops an epidemic of magazine articles on "What is the matter with our public schools?" pointing horror-stricken at the vanishing three r's, after which the teacher redoubles her efforts to do both this and that at the same time.

This is in preamble to a discussion of the latest request, coming from Detroit, which says to the teacher, "While you have the children all day long, can't you just 'screen' them for the doctor?" It is explained to the teacher that since the doctor gets several times as much pay as she does for the hours he puts in, it is of course advisable for her to save his time. Such an argument does not particularly appeal to the overburdened and underpaid teacher. Nevertheless I am in favor of the plan because it is an education for the teacher. Until the good time comes when every child is given a complete periodical examination by a competent school physician, or until the physicians of the communities are ready to shoulder the task of keeping all their children well, we shall have to make the school doctor go as far as we can. To this end he must turn teacher, and teach the teacher how to give a health examination—to recognize a healthy child, and, the most difficult of all diagnoses, to detect the beginnings of departure from health.

The teachers will welcome this training and they will do this screening with keen interest, not because they are saving the doctor's time, but because they are being educated to understand their raw material. Anything which they are convinced will really benefit the children they will do, no matter how crowded their day. So, bring on your screen and teach us, not to look for defects, but for the characteristics of abounding health.

Any screening separates into two groups; both must be cared for. In screening for health, we will easily come upon the gross defects. Shall we bring this group to you for re-screening and for routine notification of the home that examination by the family physician is desirable? The school physicians tell us that they are dissatisfied with this plan, for unless a nurse follows up the notification, only a small percentage of corrections result. Usually the school doctor may neither make diagnosis nor prescribe, and it seems a woeful waste of high-grade time for the school physician merely to re-screen and notify. Or, shall we bring you the other group, those in which there are no defects as yet gross enough to be detected by the inexpert eye, so that you may do the highly technical work of detecting the beginnings of defects and, by education of the parent, child and teacher, prevent the development of ill health? There might be no great difference in the response of the homes in the matter of corrections of gross defects, if the nurse or teacher referred the case, whereas the physician would be free to concentrate on the more difficult task of detecting and heading off the incipient beginnings of ill health. Also, in screening for defects and reporting only the worst cases, there is the very grave danger of regarding the child as the algebraic sum of the presence or absences of defects. We want the doctor to help us to keep the child as a unit constantly before our eyes. We are too prone, as teachers, to chop the child up into three parts, grab the mind for ours, turn the body over to the physician and his soul to the preacher, washing our hands of all responsibility for the last two.

There will be a beneficent by-product of your teaching us to "screen" for you. This will be the necessity of standardizing your own examination. Here are listed the percentage of occurrence of nine defects, as reported from seventy-six different school systems, a total of about four and one-half million children:

STUDY OF FINDINGS OF SCHOOL PHYSICIANS OF SEVENTY-SIX CITIES (4,483,685 CHILDREN)

Obstructed breathing	39% to 2%
Dental defects	77% to 8%
Enlarged tonsils	68% to 4%
Enlarged cervicals	71% to 0.2%
Enlarged thyroid	24% to 0.04%
Cardiac defects	44% to 0.4%
Lung defects	5% to 0.06%
Orthopedics	16% to 0.05%
Nervous disorders	18% to 0.1%

Making all due allowance for variations due to seasonal, geographical, racial, social and other conditions, this does seem to point to a need of standardization. When the physicians of a school system teach the teachers to "screen," they must get together regarding the methods and aims of their own examinations.

This screening for health, and notification of either the school physician or the family physician of defects gross enough for the teacher to detect, is the first of three possible methods of teacher screening. The second is by inspection. But as the teacher's eye is not trained, she does not do this well. For instance, in one study I asked the teachers and the nurses to rate children according to the same scale used by the physician, that is—I Superior, II Good, III Poor, IV Very Poor. In this study—

Nurses and physician gave same rating in 27 per cent of the cases.

Teachers and physician gave same rating in 29.5 per cent of the cases.

Nurse higher than physician in 69 per cent of the cases.

Teachers higher than physician in 55 per cent of the cases.

Nurses lower than physician in 4 per cent of the cases.

Teachers lower than physician in 15.5 per cent of the cases.

The teachers' classifications as to type of temperament were similarly inconsistent with the physicians' estimate. The pupils listed "nervous" by the physician were at a disadvantage as to general health ratings and as to weight, while the distribution of the children listed "nervous" by the teachers was chance only.

The third method of teacher screening is by the use of the weight-height-age relationship. Because of its freedom from the personal equation and the simplicity of application, this is the safest one means at present at the teacher's command of judging the relative health of the children.

Two years ago I had reached the point where I felt that, convincing as the use of weight by the teacher of hygiene was, it was not a sufficiently accurate index to warrant its continued use. Accordingly, the McCormick Memorial Fund gave me the opportunity of making an intensive study on a sufficiently large number of typical American school children to be representative. The purpose was not to demonstrate or to justify, but to find out. The detailed report of this study of the Oak Park, Ill., school children will be available before long.

So far as the weight-height-age relationship is concerned, the careful distribution by scatter plot of findings of three picked physicians—(two of them giving a complete physical examination, one a "nutrition rating")—has resulted in a justification of this method of health evaluation, which has been a surprise. In my work hitherto in large city systems where individual case study was out of the question, it was usually the exception that was brought to my attention, the skinny youngster who is in prime condition, the up-to-weight who is defective. This does occur, of course, but I believe, in light of my past two years' experience,

that such occurrences are sufficiently rare not to vitiate the method, as an important part of a physical examination.

Since few "misses" occurred among extremely underweight children who were in good health, but many among those up-to-weight who were rated "poor" in health, the conclusion would seem to be that, so far as the distinctly underweight child is concerned, the method is authentic for separating those children most in need of attention. There is grave danger of arousing a false feeling of security among children who are up to average weight, yet are in poor condition.

So far as the school child is concerned then the ideal to hold before us is an adequately paid and standardized medical health service for every child; pending this, instruction given by the physician to the teachers and nurses, that they may make a "normal diagnosis" of their pupils—pending this, a sane use of the weight-height-age relationship.

REPORT OF THE COMMITTEE ON WATER SUPPLY AND PURIFICATION

Presented to the Sanitary Engineering Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, Massachusetts, October 9, 1923.

THIS is a period of unusual activity in water supply extensions and betterments, notwithstanding that some large programs are being formulated slowly as judged by pre-war records.

1. Projects for providing additional supply are in various stages of development in the Metropolitan Water District of Boston, Providence, New York, Water District of Northern New Jersey, Philadelphia, Columbus, Minneapolis, St. Louis, Kansas City, Memphis, Denver, San Francisco and others. An item of importance is the growing difficulty, in localities where large lakes or rivers are not available, in securing sources of supply without great delay in a manner which fairly adjudicates the needs and rights of various interested parties, both public and private. This shows a growing need of state conservation authorities in order to effect needed allocations, and in some cases interstate action is important. For instance, the City of New York is interested in the utilization of the upper Delaware, which below the New York state line is the boundary between New York and Pennsylvania. Each of the three states concerned has proposed commissions to take up this question on broad lines.

2. It is gratifying to record the continued activity in the building of water filters, with projects under development for new filters or extensions to old filters at Philadelphia, Baltimore, Richmond, Grand Rapids, Minneapolis, Milwaukee, Detroit, Cleveland, Buffalo, Montreal and for numerous smaller cities.

3. In New England it is worth noting that a mechanical or rapid filter is now in service at Cambridge, Mass., and that filters of this type are to be built at Providence for the new supply there.

4. Albany, with valuable experiences in the filtration of the highly polluted Hudson River water, is to have its purification system revamped so as to provide aeration, complete facilities for coagulation and sedimentation preparatory to mechanical filtration, and then treatment by the original sand filters. The Albany program of complete filtration by each type of filter is in line with the practice for several years at Poughkeepsie, N. Y., which also derives its supply from the Hudson.

5. The newest step in the field of water treatment is the use of an iodin salt at Rochester for combating endemic goiter; this in conformity with the recommendation of Dr. Goler, the City Health Officer. A two weeks' application of sodium iodide at the rate of 0.64 pound per million gallons has already been carried out by the Water Bureau there. It is expected that similar treatment twice a year of the public water supply of twenty-five million gallons daily will eliminate goiter, so prevalent in that city. Estimates place the number of preventable cases of goiter among children in Rochester each year at 2,000.

6. The use of chlorine in excess of that

needed to destroy bacteria, in order to reduce or destroy objectionable tastes or odors, has been found very helpful for the supply at New York and at London. But further discussion of experiences is needed in order to promote a more general application of this helpful method under a wider range of conditions as to content of plankton, and of phenols from industrial wastes and washings from tarred or oiled roads. It would be helpful to ascertain more definitely the kinds, types and quantities of organic matter, living or dead, which may cause the iodoform tastes with chlorination.

7. On the basis that superchlorination seems likely to come into wider use, especially for unfiltered supplies and for supplies which are filtered under conditions permitting plankton growths to exert an influence on the water as it reaches the consumer, it is well to bear in mind that the excess of chlorine may be removed by reducing agents such as sulfur dioxide, thiosulfate, etc. Dechlorination has been investigated at London, Chicago and a few other places, but has been rarely used except for unusual conditions. It does not seem to have met with much initial approval from engineers, due perhaps to the idea that water treatment by its use is getting to be too complicated. However, conditions are likely to arise where a good working knowledge of both superchlorination and dechlorination may produce results greatly appreciated by the water consumers. There are few places where chlorination can be applied as advantageously as at Jersey City or New York City, either as regards the uniformity in quantity of water to be treated or the long time interval occurring between the application of chlorine and the arrival of the treated water into the distribution system.

8. An important event of this year has been the decision in the Melcroft Coal Co. case, whereby a water company in the coal fields of western Pennsylvania sought to enjoin the various coal companies in the Indian Creek Valley from discharging mine drainage into the water courses above the impounding reservoir of the water company, the water from the outlet of which has at times approached acidity. The trial court denied the injunction. The proceedings in this important test case were of unusual interest in that they dealt with the absence of statutory authority for action by the State Department of Health, and, with the application of the common law, as well as questions of public policy, including the balancing of equities. The evidence related to various remedial steps, applicable to both complainants and defendants, including neutralization, water softening, corrosion, boiler use, need of filtration for other reasons, diverting the drainage, alternate reservoir sites, etc. The situation taken as a whole is a complicated one in this and other instances and suggests the need of studying certain experiences observed in setting up local authorities to function in a given area in a practical way from all angles.

9. The corrosive action of water on cast-iron pipe systems, lead and galvanized iron service pipes, and household plumbing, continues to receive attention with some indications of steps in advance. Obviously there is a marked advantage in making a water inert to the metals with which it comes in contact. This involves the public health in relation to lead poisoning, the objectionable appearance of the water regarding rusty or "red water" conditions, and the carrying capacity of the pipe lines in relation to tuberculation. The new well water supply of Memphis, although containing only moderate quantities of dissolved iron will not only be deferrized but freed from most of its high content of free CO_2 in order to lessen the corrosive action of the filtered water in the pipe systems and household plumbing. In England the hardening of soft peaty water seems to be on the increase. In studying the lead solvency of soft water, Thresh has recently considered the use of silicate of soda which it is understood is under investigation for the Birmingham supply, in lieu of lime hardening.

10. The proposal of the United States Public Health Service to modify its standard for water quality is an important event, of great interest to all sanitary engineers having to deal with the relation of water supply to the public health. Full presentation and discussion of basic data, such as are now coming to the front, are bound to be helpful in arriving at a sound conclusion. This should be of benefit not only as regards the public health but also to all engaged in this branch of the public service, regardless of whether they are medical officers, laboratory men, sanitary engineers, or whether they are attached to a health department or to a water plant.

11. The actual adoption of an acceptable uniform program with regard to methods of testing water and to the interpretation of results is bound to be advantageous to all concerned.

This desirable end cannot be attained successfully in practice unless the interested persons and groups of persons coöperate in a diplomatic and effective manner. It is to be hoped that the Sanitary Engineering Section will leave no stone unturned in this movement to bring about such coöperation promptly and reliably at every opportunity, and also to record its approval of all worthy coöperative steps along all lines in which sanitary engineers are directly interested.

GEORGE W. FULLER, *Chairman.*

REPORT OF THE COMMITTEE ON RETAIL DISTRIBUTION, PREPARATION, AND MARKETING OF FOOD

Presented to the Food and Drugs Section of the Fifty-second Annual Meeting of the American Public Health Association at Boston, Massachusetts, October 10, 1923.

THE food supply, in its broadest sense, represents the stability, comfort, and prosperity of the world. It is one of the chief problems which most of the large nations are considering at the present time. Great strides have been made during the past decade in medical and public health science that have resulted in materially lengthening the span of life; but unless energetic action is taken to solve the food problem, this and other nations will, in the near future, face a food shortage which will seriously hamper progress in public health control and be detrimental to economic welfare. We are the most wasteful nation in the world, demanding those foods which appeal to both the palate and the eye, rejecting much that would be far more beneficial to our bodies. It is apparent in many ways that if we are to maintain progress in the conservation of human life more attention must be given to problems relating to food, both in their dietetic and economic aspects.

Enormous waste in the distribution of food was prominently brought to public attention during the financial depression of 1909-10 through the report of a commission appointed by the Massachusetts Legislature, which states: "The most wasteful part of our economic system is that concerned with the distribution of food." (*Rept. Com. Cost of Living,* 1910, p. 315.) This finding has been confirmed by other studies.[1]

The reports of previous committees have set forth some of the chief causes for such wastes with suggestions for their minimization. An added factor of considerable significance, however, is the great waste of food in its distribution in the higher class hotels and restaurants, due to the custom of serving individuals much in excess of their needs. Some of such excess food is salvaged through distribution to charitable institutions; but, nevertheless, large quantities are discarded as human food. While it is true that there have been spasmodic and isolated attempts to control distribution in the interests of conservation, a review of the investigations referred to indicates that the problem is clearly one for public health officials to study and attempt to solve.

Regarding the distribution of food from a strictly sanitary viewpoint, considerable progress has been made through the adoption of more stringent regulatory measures by various cities and states. There is, however, lack of uniformity both as to their application and the commodities to which they apply. There has also been much improvement by a more sanitary packaging of prepared food, while such agencies as Consumers' Leagues, Women's Municipal Leagues, etc., have done much along educational lines to promote greater care in handling and cleanliness in stores.

There are certain susceptible foods which, for various reasons, are not ade-

quately safeguarded from contamination in their distribution. It has been frequently noted that stores selling ice cream, candy, and beverages were in such filthy condition that no self-respecting health official would license the premises if the matter were one for him to decide. Unfortunately, there are too many municipalities where the sale of such commodities is not licensed or where the licensing authority is vested in a board of aldermen or a licensing board whose members know little of sanitation and who are often susceptible to political or commercial influences. An annual license for the sale of such commodities should be issued by the health department and only after the premises and equipment have been made to conform to a reasonable sanitary standard, and where the habits and business of the proprietor do not preclude the possibility of sanitary handling.

Unwrapped candy, because of hand contact, is a convenient carrier of disease germs and is eaten largely by children who are very susceptible to infection, while ice cream is essentially a dairy product and should receive the same protection now accorded to milk. We have abundant evidence that both candy and ice cream, when eaten in excess, are responsible for many intestinal disorders and acute illnesses among children.

From our investigation the need for a bacterial standard for ice cream was very apparent. To illustrate: samples for bacterial analysis were taken at 67 retail establishments; only 7 contained less than 1,000,000 bacteria per c.c., while 28 contained over 7,000,000 bacteria per c.c. The largest bacterial content was found in those samples taken from the smaller fruit, grocery, and variety stores where the serving clerk handled many other commodities. It was also found that candy in these types of stores was handled in an extremely unsanitary manner. Other sources of contamination were unclean containers and pipes at soda fountains and the lack of sterilizing equipment. It was noted that several types of soda fountains were not constructed to admit of proper cleaning, while the syrup containers were of a metal extremely susceptible to corrosion.

Another matter deserving more attention is the large number of retail food stores which have no facilities for cleansing the hands or sterilizing the utensil used in handling food. Replies to a questionnaire showed that of 82 country and suburban stores, only 14 were equipped for maintaining hot water; 21 reported that they could heat water in a kettle over oil or gas stoves (which we find is seldom done for cleansing purposes); of the remaining 47, 35 had running cold water only, while 12, or nearly 15 per cent, did not even have a cold water supply for washing hands. Of 87 city food stores, all reported running water, but only 54 had hot water facilities.

Regarding the preparation of food, as far as processing and manufacturing is concerned, greater competition and modern machinery have eliminated many forms of waste and have made possible the utilization of many by-products for food. It seems desirable, therefore, to deal only with matters pertaining to sanitation. While many of the larger food processing establishments are not immune from criticism, it has been noted that they maintain, as a rule, a far higher sanitary standard than do the smaller ones. Many state departments of health exercise some supervision over certain types of country food processing establishments, but scattered throughout the country districts there are thousands run on a small scale which receive no inspection whatever by public health officials; many of these are located in kitchens and even cellars and stables. The proprietors of such plants sell their products in nearby cities in competition with city processors who have to meet the expense incidental to complying with city food inspection regulations. Such conditions present opportunity for constructive action. We commend the

work of such organizations as the National Canners' Association for maintaining research laboratories for the purpose of devising means for the prevention of unsanitary conditions and to decrease the cost of processing. It would be desirable if such organized efforts could be more largely extended to the smaller processors.

During the summer, a partial survey was made of food processing plants in New England districts. While improvements were noted in the dairy industry because of recent coöperative action taken by health officials in Greater Boston, extremely unsanitary conditions were found in connection with the processing and canning of many country products. Of the 104 country food processing plants visited, only 27 could be classed as sanitary; 48 had no facilities for sterilizing equipment or for washing the hands; 37 had no provision for eliminating flies and in most cases were badly infested; 19 had no toilet facilities and fecal deposits were found in close proximity to the buildings; while 7 were using questionable water supplies from brooks and rivers. These data were gathered without any prearrangement as to districts, the investigator locating the food plants in various sections of the country where he was called on other business. The above observations are, therefore, especially significant and point to conditions requiring progressive action.

One of our committee members has investigated the methods used by railroad and steamship lines in the preparation and handling of food. He found many unsanitary conditions, also little or no supervision by health officials over the culinary departments of transportation companies. The fact that they do interstate business should not exempt them from complying with reasonable food regulations.

The necessity for promoting agriculture and providing adequate marketing facilities is perhaps the most perplexing and important problem in relation to our food supply. If the pitfalls into which other countries have fallen are to be avoided, agriculture must be placed on a more prosperous basis. This is a national problem in which public health officials can assist, for they, more than any other class, know the effect of agricultural depression upon the public health. The late President Harding, in outlining his agricultural policy at the Minnesota State Fair, September 6, 1920, stated: "If we are to achieve national prosperity, or avoid periods of economic depression, we must protect our agricultural interests in an effort to make the United States self-sustaining." During the past year the agricultural interests have greatly expanded their organizations for storing and marketing their products. The rapid growth of the Farm Bureau movement has done much to stimulate agriculture and hold in check radical elements among the several organizations. We point to the "Farm Bloc" as an illustration of the strength which can be developed by organized effort. It is a question, however, if some of the organized machinery will not go too far, and instead of aiding agriculture, throw discredit upon the movement by allying itself with political agencies.

It is obvious that as long as the production of food is specialized and segregated as at present, the high cost of transportation to market will continue to be a serious detriment to healthy, economic growth. When thousands of bushels of potatoes are shipped from Maine 1,000 miles or more to grain growing districts, while 78 per cent of the grain used in Maine is shipped from a like distance, or when the freight rate on prunes and other fruit from Wilder, Idaho, to Chicago, is $1.50 per 100 pounds, we may well ask if there is not something wrong with our economic structure. We should revert more to the practices of our forefathers, and through diversified farming produce our own foods within reasonable shipping distance. To illustrate, the New England States produce a little less than

25 per cent of their own food, while climatic conditions are so favorable as to permit the production of 79 per cent of the food supply in that district. These figures are from authentic sources and it is estimated that this same condition exists in more than three-quarters of our territory.

In regard to marketing conditions, it is evident that there is considerable waste because of "overloading" the market at seasonable times, the failure to provide suitable storage facilities, and the consequent deterioration of certain perishable foodstuffs. The condition of the average public market in large cities throws discredit upon the advancement made in food inspection work. Sidewalks and gutters are generally strewn with decaying foodstuffs, which are responsible for swarms of flies and provide sustenance for rats, mice, and other vermin; ripened fruits are sorted and picked over on the sidewalks, the deteriorated portions being left in the streets for days; while the less cleanly and intelligent employees expectorate indiscriminately about the market place. The streets in such districts are frequently not properly watered, thus allowing dust to further contaminate the products. While the necessity for the quick handling of fresh food products is admitted, there is no apparent reason why a higher standard of sanitation cannot be enforced without injury to the industry.

From a general viewpoint of our food supply, the need for more uniformity among inspection officials in methods of control is plainly evident. The various municipalities in one contiguous district have variable regulations with different degrees of enforcement. This causes much confusion among the dealers and results in a general disregard for sanitary laws. Steps have been taken in some parts of the country for an adoption of uniform municipal health regulations, and it is hoped that this procedure will be generally followed throughout the country wherever climatic conditions will permit.

In pointing out opportunities for constructive work by health officials, it must not be inferred that they, as a class, have been negligent or responsible for the present chaotic conditions attending the distribution and marketing of our food supply. Records show that some of the leading health officials of the country, after studying the problem and presenting solutions covering various phases, have had them rejected by the public as too expensive, too stringent, fads, etc. This committee has found several recent instances of retrogressive action by the voting public. Municipal food centers, where every phase of dietetic and food economy was available to the public, have been closed; municipal and school dietitians have been dispensed with; appropriations for food research work in colleges and state health departments have been cut down; all because of misguided public opinion and lack of knowledge as to the value of such activities, which, although appearing obscure to the average citizen, are potent factors in the conservation of human life.

In conclusion, public health officials can exert constructive influence by allying themselves with the many movements and organizations which are striving to reduce the cost of food and thus expand their opportunities to promote higher standards of public health.

WILLARD E. WARD, *Chairman*
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OCCUPATIONAL DISEASE AND WORKMEN'S COMPENSATION LAWS

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Read before the Industrial Hygiene Section at the Fifty-second Annual Meeting of the American Public Health Association at Boston, Massachusetts, October 10, 1923.

THE FIRST workmen's compensation law to stand the test of the courts was that which became effective in Wisconsin in May, 1911. Following the lead of Wisconsin a number of other states passed such legislation. In all these earlier laws there was no provision for the payment of compensation for diseases that were believed to be due to the occupation. In fact, some of the laws specified that no compensation should be paid for such diseases. This exclusion was accomplished by stating that only such accidents as arose out of or in the course of employment were to be compensated.

It is thus seen that from the beginning of workmen's compensation administration a broad distinction has been made between accidental injury and occupational disease. The accidental injury is considered an unforeseen, unexpected event, occurring suddenly, and, in some jurisdictions requiring violence to the physical structure of the body; whereas an occupational disease is reasonably to be expected as a natural result of the hazards of the employment, and develops gradually.

A recent report[1] by the National Industrial Conference Board of the medical aspects of workmen's compensation laws has disclosed many interesting decisions bearing on the subject of occupational disease. A few of the more interesting ones are noted in this paper.

In only eight[a] of the forty-two states having such laws is compensation for occupational diseases now in effect. In many of the other states the laws specifically provide that compensation shall not be paid for occupational diseases. In four states[b] the diseases for which compensation shall be paid are listed; while in the other four states the law has been interpreted to cover these disease conditions in addition to injuries.

In those states in which the diseases are listed for which compensation may be paid, claims have been denied for other diseases alleged to be due to the occupation, because they were not specifically mentioned in the law.

Some of the peculiar decisions bearing upon this question may be of interest. In Michigan,[2] which does not compensate for occupational diseases as such, a claim was denied for an infection following the constant wetting of the worker's hands in a staining solution, because there was no scratch or abrasion through which the stain entered the system, and it was held that the disability was due to the peculiarity of the work, and not to accident. In a similar case in Pennsylvania[3] there was a scratch on the hand, through which the stain entered, and the resulting infection was held to be compensable.

Also in Michigan[4] a fireman died from pneumonia following a drenching while fighting a fire in winter weather. In this case claim was also denied, as the fireman was pursuing his usual and regular duty of fighting a fire, and the pneumonia could not be traced to an accident.

The Massachusetts[5] experience is based upon a claim where a cigarmaker became totally incapacitated due to the stooping position in which he worked. In denying compensation the Supreme

a. California, Connecticut, Illinois, Massachusetts, Minnesota, New York, Ohio, Wisconsin. (New Jersey added an occupational disease amendment during the 1924 session of its legislature.)

b. Illinois, Minnesota, New York, Ohio.

Judicial Court held that there was no evidence to show that the claimant's condition resulted from his occupation.

In another Massachusetts case[6] a cigarmaker, who by reason of his occupation suffered neurosis in his hands and arms with consequent inability to use them in making cigars, was awarded compensation because the condition was brought about by an unusual degree of strain upon certain groups of muscles for a long period of time and the condition was peculiar to the work which the claimant was doing.

As stated previously, in states where the law requires the injury to be of an accidental nature, occupational diseases are not compensable. Under this provision the Pennsylvania board[7] has refused compensation for asthma due to continued inhalation of coal dust, and in Wisconsin the board[8] denied compensation to a worker suffering from dermatitis as a result of working with cyanide solution for several months.

In New York,[9] which has a distinct schedule of occupational diseases, compensation was denied a photographer's assistant who suffered gangrene and amputation of a finger caused by the action of developing solution upon the hand. This case was not covered by the disease schedule and its accidental nature could not be proved; therefore, the claimant was denied compensation.

An interesting type of occupational disease was reported from California.[10] A fifteen-year-old boy, employed as a dairyman's helper, complained of disability in his hip. The examining physician diagnosed the case as epiphyseal separation of the neck of the left femur due to innumerable jars caused by the claimant's jumping from the delivery truck. This type of injury was made possible by the incomplete ossification of the femur, which was characteristic of a person of his age.

Several states have rendered decisions favorable to compensation in cases of disease developed largely through the medium of an accident, although there was no physical contact to produce the accident. Thus, in California[11] a show card writer who used wood alcohol in an air brush when writing cards practically lost his eyesight from inhaling the poisonous fumes. At the time this occurred the employee had been rushed with work and had used more of the alcohol than was his usual custom. The court held that the incapacity was due to an accidental injury rather than an occupational disease.

In a similar poisoning of workers using wood alcohol to dissolve shellac which they were applying to a closed vat, one of whom died the following night, and the other became totally blind the next day, the New York Board[12] made an award, not for occupational disease, but for personal injury by accident.

In a Michigan case[13] in which a coworker released the pressure too rapidly from a workman who had been working in compressed air, and who was overcome and died, it was held that the circumstances here constituted an accident, and not an occupational disease as claimed by the employer.

A distinction should be made between occupational diseases and other diseases which arise out of, or in the course of, employment, such as typhoid fever, smallpox, scarlet fever, erysipelas, influenza and others, for which compensation has been paid. This latter group of diseases has been traced to a definite time and occurrence in the occupation of the claimant, and as such have been held to be due directly to the employment, but not inherent in the employment as are the so-called occupational diseases.

Compensation has been allowed for typhoid fever contracted in the course of employment. The Supreme Court of Wisconsin[14] handed down a decision holding the employer responsible for an accidental injury to workmen who drank water in the factory which was polluted with typhoid bacilli. This case has formed the precedent for similar awards in other states.

Pneumonia has been compensated both as a result of exposure[15] and following an injury.[16] Tuberculosis has been compensated as the aggravation of a preëxisting or latent disease[17] and as a direct result of accident.[18]

Other diseases of a similar character have been compensated, but their association with the occupation has been of an accidental nature, and in no way were they an inherent hazard of the occupation.

The practice of specifying certain diseases for which compensation will be paid, to the exclusion of all other diseases, seems to the writer to be opposed to the most rational methods of handling this question. If such a policy is pursued it will mean the gradual extension of the list, with a sharp and arbitrary difference of opinion regarding diseases that are occupational and those that are not. This will lead to controversies and misunderstandings between parties most interested in this question. It would be better, instead of specifying in the law certain diseases, to insert a clause stating that such diseases as are proved by reliable medical testimony to be due to, or caused by, the occupation, should be entitled to compensation. In this way the demands of justice would be met without attempting beforehand by legislative enactment to say what are the compensable conditions that should be classed as diseases of occupation.

The tendency among some legislative reformers is to group more and more disease conditions under the classification of occupational, regardless of when or where they occur. With the tendency of industrial boards to deal leniently with the injured worker whenever possible, it is only a question of time until the laws are loaded with diseases which have only a remote connection with the industry to which they are assigned.

In conclusion, it should be remembered that many disease conditions, the cause of which may be assigned to industry, have their beginnings in faulty domestic conditions, either of housing, diet or habits of the person affected. These conditions should, therefore, be given due consideration in the final analysis of these cases. Public health authorities in the community should coöperate with those industries that are striving to better the health conditions of their workers and lend all possible assistance in the health supervision of the workers outside their hours of employment.

1. Research Report No. 61, National Industrial Conference Board, New York.
2. Jermer v. Imperial Furniture Co., 161 N. W. 943.
3. Taylor v. Lester Piano Co. Penna. Workmen's Compensation Board Decisions, Vol. 5, p. 92.
4. Landers v. City of Muskegon, 163 N. W. 43.
5. In re Maggelet, 116 N. E. 972.
6. Lee v. Allis & Fisher, Mass. Industrial Accident Board. Workmen's Compensation Cases, Vol. 2, p. 752.
7. Schofield v. Budd Manufacturing Co. Penna. Workmen's Compensation Board Decisions, Vol. 3, p. 302.
8. Schoda v. Garage Equipment Co. Wisconsin Industrial Commission, 7th Annual Report, p. 27.
9. Jeffreys v. Sager, 191 N. Y. Supp. 354.
10. Hurd v. Crown Dairy. California Industrial Accident Commission. Decisions, Vol. 8, p. 215.
11. Fidelity and Casualty Co. v. Industrial Commission, 171 Pacific, 429.
12. Eichhorn v. Kraffmeyer. New York Department of Labor, Special Bulletin No. 97, p. 30.
13. Williams v. Missouri Bridge & Iron Co., 180 N. W. 357.
14. Vennen v. New Dells Lumber Co., 154 N. W. 640.
15. In re McPhee, 109 N. E. 633.
16. Delso v. Crucible Steel Co., 187 N. Y. Supp. 66.
17. Van Kieuren v. Dwight, Divine & Sons, 179 App. Div. 509.
18. Lundy v. George Brown & Co., 106 Atlantic, 362.

EDITORIAL SECTION

AMERICAN JOURNAL OF PUBLIC HEALTH

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ENCEPHALITIS LETHARGICA

For several years past interest in this disease has been on the increase. Not only have the professional journals discussed it at length, but the lay journals have also undertaken to write about it. The name "sleeping sickness," or "sleepy sickness," which is constantly given to it by the lay press, has caused a certain amount of confusion, since the true sleeping sickness is found only in Africa, and some have been led to suppose that the disease seen in other countries is identical with, or related to, the one properly called by this name. A memorandum issued by the Ministry of Health[1] in England has summed up our knowledge concerning encephalitis lethargica, and brought it up to date.

It may be said that the disease was first recognized as a clinical entity in 1917, in which year it appeared in various parts of the world. At the present time its distribution is world-wide, and it even seems possible that the disease is undergoing an evolution, or has reappeared after a long absence, possibly through a parasite which has been heretofore more or less harmless taking on pathogenic functions. Of this there is no proof; it is only a theory.

England perhaps has a better record of the disease than any other country. Statistics in that country show that while in 1919, 538 cases were reported, in 1920 there were 914 cases; in 1921, 1,470; in 1922, 454; in 1923, 1,025. For the first half of 1924, 2,468 cases have been reported; so that it is not out of the way to speak of the disease as being epidemic at the present time in the British Islands.

The cause of the disease is still unknown. In spite of the excellent and important experimental work of McIntosh, Levaditi and others, we are still in the dark concerning many points. The clinical types of the disease are fairly well recognized; though marked alterations are seen, and some epidemics have been noted in which

1. Memorandum on Encephalitis Lethargica. H. M. Stationery Office, 1924.

the symptoms are markedly different from the general run. Instead of the profound stupor or coma persisting for long periods, many cases now show an overactivity of the brain, marked by sleeplessness, delirium, and excitement.

The mortality of the disease varies between 20 and 50 per cent, and it is believed that the higher figure is the more accurate of the two, though the British Ministry of Health considers it too early for a correct estimate. The after-effects of the disease are often exceedingly severe, and are important from a neurological as well as a medico-legal standpoint. The acute attack may at times be so mild as to escape attention, and only when profound alterations in conduct or serious nervous disturbances arise may the true conditions be recognized.

The infectivity of the disease is believed to be of a low order, though the existence of several cases in the same household, as well as in institutions, and the observations concerning small outbreaks, may lead to a modification of this opinion.[2] At the present time we know nothing of the surroundings which influence contagion.

It behooves public health officers particularly to be on the lookout for this malady, which leads to death in many cases, and profound disability in many others, for it is apparently on the increase throughout the world. Mistaken diagnoses may be, and doubtless are, made owing to the incomplete state of our present knowledge concerning what seems to be a new malady.

2. A. J. P. H., Vol. XIII, No. 6, p. 486.

THE SPECIFIC ANTIBODIES OF ANTI-PNEUMOCOCCUS SERA

The medical world has received with great interest the announcement of a new serum against pneumonia.[1] If it proves to be as successful as the experiments now indicate, it will be a tremendous step forward in the treatment of pneumonia, which is still a leader as a cause of death, practically throughout the world, and which has defied all attempts hitherto made to materially lessen its ravages.

The complete details of the work of Dr. Lloyd D. Felton have not yet been made public, and presumably will not be published in their entirety until the value of the treatment has been thoroughly studied under careful control. The commercial houses have spent a great deal of money in producing sera against pneumonia, and also in the production of other biological products—for example, Huntoon's antibodies—and all of them are naturally anxious to put something on the market to supply the demand for an efficient therapeutic product. Dr. Felton's material is a concentration of the specific antibodies which are found in anti-pneumococcus serum, which apparently are euglobulins. He has succeeded, it now seems, in concentrating the known antibodies found in protective sera to such a point that they can be given in sufficient quantities to counteract the disease without inconveniencing the patient—a notable achievement.

The sera which have been devised against some types of pneumonia, and which have been in use for several years, have at least shown the possibility of a specific cure, though there is still some difference of opinion concerning their value. Dr. Felton's method of isolation and concentration is one of the simplest which have been proposed, and has the additional advantage of getting rid of the horse serum proteins which have caused so much trouble in the use of sera.

1. *The Boston Medical and Surgical Journal*, May 15, 1924.

We must commend the stand taken by Dr. Felton in opposing the efforts to exploit his product before it has been thoroughly tried out in practice. It is a matter of regret that his work has already been exploited in the newspapers to an undesirable extent, and that extravagant claims for it have already appeared in the public press. In the meantime the medical profession will await with interest the results of the experiments, which are to be carried out on an extensive scale in different parts of the country by men well fitted to judge of the therapeutic effects. Only harm can be done by rushing into the use of a treatment which has not had a thorough trial under the supervision of its discoverer. It should also be remembered that it is impossible for any manufacturer at the present time to produce Dr. Felton's material, since we understand that he has not given to anyone his entire methods nor his consent for its manufacture, and will not do so until the scientific study of the product has been completed.

NEW TRAINING FACILITIES

It is of more than passing interest when new facilities are provided for the training of sanitarians. Of special importance, therefore, are two recent announcements from the University of Toronto and the Massachusetts Institute of Technology.

On May 20, the International Health Board of the Rockefeller Foundation approved a proposal to assist financially in the creation and endowment of a School of Hygiene in the University of Toronto; and the following day the Rockefeller Foundation pledged $650,000 to the Governors of the University of Toronto, for this purpose. The Governors of the University have accepted the proposals and the above mentioned sum will be utilized to provide a building to cost not more than $400,000, and the remaining $250,000 will be used for the endowment of the school. While final details of organization remain to be perfected, the school will include the departments of hygiene and preventive medicine and public health nursing and the Connaught Laboratories. The operating or public service divisions (namely, the antitoxin and insulin) of the Connaught Laboratories will be merged and constitute a public service section in the school.

The endowment will be added to by the inclusion of the resources of these laboratories, namely, the Connaught Laboratories Research Fund. The Governors of the University have agreed to maintain the building and continue to sustain the budgets appropriated for 1924–25, for the maintenance of teaching departments of hygiene and preventive medicine and public health nursing.

A further statement dealing with the organization of the school is promised for a later date.

For thirty years sanitarians have been given undergraduate training in the Department of Biology and Public Health of the Massachusetts Institute of Technology and, beginning with the next college year, the Institute will offer the degree of Doctor of Public Health to properly qualified candidates. This school was the first technical school to offer courses in public health, and under the leadership of a former president of the Association, the late Professor William T. Sedgwick, there was built up a strong course of studies.

While Technology has been essentially a school of engineering, it has always promoted the development of courses in applied sciences which seem to meet a public demand or to promote national welfare. As a great engineering school, it offers abundant opportunity for work in chemistry, physics, sanitary engineering,

and business administration. The necessary courses of study in the medical aspects of public health for the new degree will be given by well qualified medical men.

This step is not an entirely new one; a year ago arrangements were made by which duly qualified officers of the Medical Department of the United States Army could secure the Doctorate in Public Health. The opening of this degree to civilians has come about largely as the result of an insistent demand from a group of public health workers who have felt that Technology, with its fine record of achievement, and its high ideals of professional service in this field, should award this degree on the same basis as its other advanced degrees; but it also represents the culmination of plans long cherished by Professor Sedgwick and his co-workers, but which he, unfortunately, did not live to see brought to fruition.

In a relatively new field, like public health, it is fortunate that various kinds of institutions provide training. Differing backgrounds will produce varying emphasis in the training, and the future of public health may thus be assured of enrichment by all of its constituent sciences in their due proportion.

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ASSOCIATION NEWS

AMENDMENTS TO THE CONSTITUTION

On December 7, 1923, the Executive Board of the Association authorized the appointment of a Committee on Constitution. This committee, after studying the Constitution and By-laws of the Association, has recommended certain changes which have been approved by the Executive Board and will be presented to the Governing Council and the members of the Association for action at the Detroit meeting. The amendments to the Constitution which are to be acted on are herewith officially published for the information of the members of the Association.

Article III, Section A, paragraph 4:

Add at end of this paragraph the words "Such representative shall be a Fellow of the American Public Health Association." (This refers to the representative of affiliated state societies on the Governing Council.)

Article IV, line 3:

Insert after "The officers" the words "with the exception of the Executive Secretary."

And add at the end of this article the words "The Executive Secretary shall be elected by and serve at the pleasure of the Executive Board."

Notice of the amendments to the By-laws has already been sent to the members of the Governing Council.

Copies of the Constitution may be received by application to the office of the Association.

CHANGE IN EDITORIAL OFFICE

With this issue, the editorial office of the JOURNAL returns to New York from Detroit where it has been since January, 1923. Dr. Henry F. Vaughan has given his own time and efforts to the editorship, and the members and Fellows owe him a debt of gratitude for his contribution to the Association. For the time being, the General Secretary will edit the JOURNAL as a member of the Editorial Committee, and Drs. Ravenel and Vaughan will continue to serve as members of the Committee.

HOSPITALS AND HEALTH OFFICERS

Last year at the Boston meeting a paper was read in the Public Health Administration Section on "The Relation of the Hospital and Dispensary to the Public Health Movement," which suggested the possibility of a closer relationship between hospitals and health departments. In discussing this paper Dr. Kelley of Massachusetts said: "About once in several years we get a really new idea. This seems to be one of them. It is a fundamentally important subject. I would like to make a motion that this whole matter be referred to the Section Officers and Section Council, in their capacity as a Committee on Resolutions to consider the matter and bring to a later meeting of this Section some suitable resolution by which we can place

ourselves on record and express to the American Hospital Association the interest of the American Public Health Association in this matter."

Such a resolution was passed, and subsequently the Executive Board authorized the appointment of a committee of the Association to coöperate with a committee of the American Hospital Association to study the situation and make recommendations. Dr. Park appointed to this committee, Dr. George C. Ruhland, *Chairman;* Dr. John J. Heagerty, Dr. C. C. Slemons, Dr. H. L. Rockwood, Dr. A. J. Chesley, and Dr. Alec N. Thomson as secretary. This committee met in Chicago in June with the committee of the American Hospital Association, consisting of Dr. McElroy, Dr. Whipperman, and Dr. Walter Conly. The president of the A.H.A., Dr. M. P. McEachren, and the secretary of the A.P.H.A. also attended this meeting, and there was but one member of each committee absent.

The meeting resulted in the appointment of sub-committees in Chicago and New York which were directed to collect information in these two centers from the data which might be available from previous studies of hospitals and public health administration.

An invitation was extended to and subsequently accepted by the Conference of State and Provincial Health Authorities to appoint a committee from its group to coöperate with the joint committee.

The sub-committees responsible for collecting data particularly desire to learn of successful measures or schemes of coöperation that may have been developed by health officers or hospital superintendents. A letter to the General Secretary of the American Public Health Association, 370 Seventh Avenue, New York City, mentioning such plans will be placed in the hands of the committee.

THE SIXTH ANNUAL MEETING OF THE ASSOCIATION

November 19-22, 1878, Richmond, Va.

THE picture on the opposite page appeared as a full-page illustration in *Leslie's Weekly* for December 7, 1878. It was entitled: "Virginia.—Investigating the Late Epidemic—Convention of the American Public Health Association in Mozart Hall, Richmond.—From Photographs by D. H. Anderson." The picture and a clipping from *Leslie's Weekly* were supplied to the JOURNAL by the courtesy of Howard B. Collins, collector of rare magazines and pamphlets, Brooklyn, N. Y.

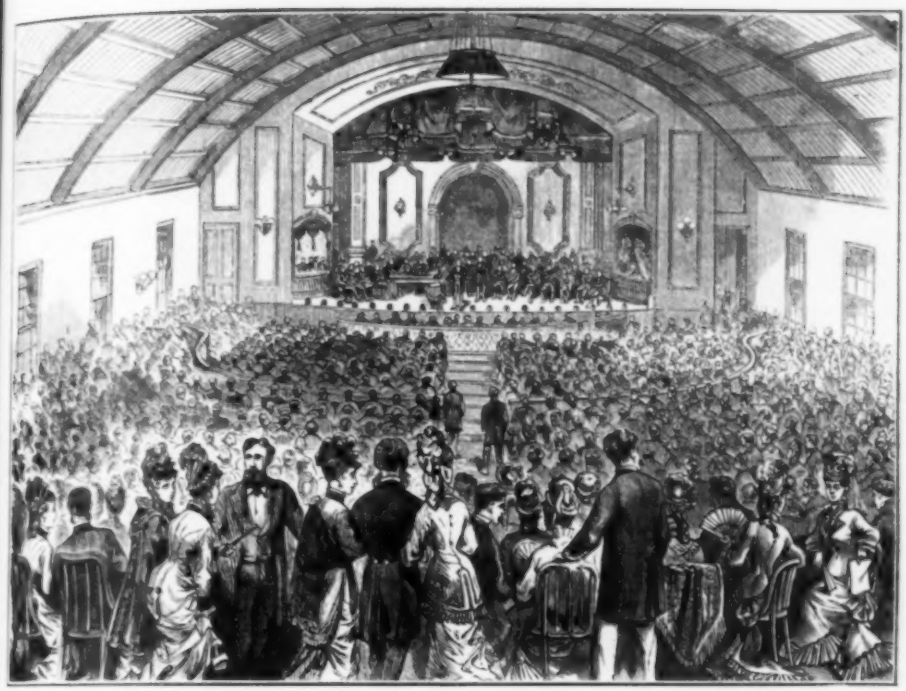
For more than a half century the A.P.H.A. has been studying the cause of disease and devising means for its control. At the Sixth Annual Meeting, in 1878, yellow fever was the principal topic of discussion. Dr. Bemis, president of the Special Yellow Fever Commission, read "an elaborate report of the investigation that had been made by himself and associates, Drs. Cochran and Howard, and Colonel T. S. Hardee, Sanitary Engineer." There were also the report of the yellow fever outbreak in Gallipolis, Ohio, in connection with the steamer John D. Porter, by Surgeon W. H. Long, Marine Hospital Service; report of yellow fever at Cairo, by H. M. Keyes, Assistant Surgeon, Marine Hospital Service, and suggestions on the application of meteorology to the investigation of the yellow fever epidemic, prepared at the request of Dr. Woodward by J. W. Osborne of Washington, D. C.

In the light of our present knowledge of the means of transmission of yellow fever, we may smile at the ideas of these earlier scientists. But we, too, will reap a measure of condescension from our successors and we can learn from these pioneers to base our conclusions on demonstrated fact.

The setting and the subjects of the sixth annual meeting are in strange contrast to the fifty-third annual meeting which will be held this year. But we must not forget that we are the legatees of the labor of the past and that the results of our deliberation at Detroit in October will reward not only us but those who follow.

At this meeting in Richmond in 1878, Elisha Harris, in his presidential address, said:

"Let not the fact be overlooked that it is not merely to rescue to-day the people who are liable to be cut off by fevers and pestilences, that it is not for the protection and increase of the commercial and public unity



for a single year or a single generation of men, that these duties of the American Public Health Association and of the physicians and hygienists of our country are undertaken; there is a more permanent result, a more comprehensive influence exerted upon the destinies of our fellow-men and of the nation at large ever to be kept in mind . . . this is the inspiring view which all cultivators of sanitary knowledge and workers for the welfare of society take."

That yellow fever is no longer one of our problems is due in part to the deliberations of these early meetings; so the *bêtes noires* of to-day—politics in the health department, for instance—will not trouble our successors if we serve our day and generation as these public spirited men did theirs.

FIFTY-THIRD ANNUAL MEETING

The years roll by and the Association now approaches its fifty-third Annual Meeting. These meetings are too well known to public health workers to need any special description or explanation. There is a greater emphasis this year on joint sessions of the scientific sections, and the general sessions revert in a measure to the scientific character of the meetings of earlier years.

The Association meets this year in a state where it is represented by an affiliated society, and the Michigan Public Health Association will participate with the national association in its meeting.

If it were possible to view the Detroit Annual Meeting program from an airplane, certain topographical features would stand out. The General Sessions are the mountain peaks which first catch our eye. The opening General Session will be held on Monday evening, October 20. State and city officials and the President of the Michigan Public Health Association will be in attendance and will formally welcome the Association to Detroit and Michigan.

A traditional feature of the first General Session is the Presidential Address, and those who have heard Dr. Park will know that the high standards set by these addresses in the past will in no way suffer this year. In addi-

tion, the Association is so fortunate as to have secured as its guest Dr. Th. Madsen, eminent serologist of Copenhagen. Dr. Madsen is Director of the State Serum Institute of Denmark and Chairman of the Health Section of the League of Nations. He has accepted Dr. Park's invitation to tell of the health work of the League of Nations. The evening will end with a reception, at which there will be dancing and refreshments.

A discussion of "Values in Public Health Work" will entirely occupy the second General Session. This is a Mt. Everest which more than one hardy adventurer has tried vainly to scale. In deciding upon this topic for discussion, all the pitfalls and difficulties of travel were taken carefully into consideration. This expedition, however, is in charge of competent guides, and a successful journey is predicted. The subject will be presented by competent authors under three heads: "Values in Communicable Disease Control," "Values in Control of the Environment," and "Values in the Maintenance of Health." At the invitation of the Central Program Committee, Professor Winslow will preside over the session, and the discussion will be summarized by Dr. Emerson.

One of the high peaks is the Forum Session. Such a session is unique in the history of the Association and is worthy of special mention. It was felt that there are many problems in administrative public health work that can be more satisfactorily solved through the combined wisdom of several heads than through the solitary struggling of the health officer. Therefore, a Forum Committee was appointed this year, consisting of health administrators and public health technicians, to answer in the JOURNAL questions submitted by health officials. It was felt, too, that many problems have never been satisfactorily solved because no time was available at scientific gatherings for open discussion. Here another opportunity for service was recognized, and those subjects in which the most interest has been manifested since the Committee was appointed, have been selected for presentation at the Forum Session. In addition there will be a Question Box and any person who wishes to propose a subject for discussion, may do so. Here is the opportunity that many people have been hoping for—the chance to have their own problems discussed by authorities. Dr. Rankin, Chairman of the Committee, will preside. There will be no formal papers, and plenty of time will be allowed for discussion from the floor.

A new territory which has been explored by specialists will be thrown open to the general association. It is an interesting territory which must be widely developed if public health is to prosper. For six or seven years a committee of the Association has periodically reviewed and reported on the matter of training for public health work. The Association has had no part in this except to authorize the reappointment of the committee from time to time and to receive and print its report. Education for a profession, however, is something that the whole profession is interested in and the Committee on Standardization of Public Health Training will hold this year a public hearing on Tuesday evening. Dr. Victor Vaughan will be the "guest" chairman of this conference, and interesting testimony will be presented.

Commercial exhibits will be shown in the Main Banquet Room of the Statler Hotel in close proximity to meeting rooms and registration headquarters. Opportunity is given to delegates to the Annual Meeting to inspect a most interesting group of products, all applicable to the needs of the public health worker. A detailed account of the products to be displayed will be given in the next issue of the JOURNAL. Meanwhile, the names of those firms which have already reserved space are given herewith:

Abbott Laboratories.....Chicago, Ill.
Cereal Soap Company.....New York, N. Y.
Cook Laboratories.....Chicago, Ill.
De Vilbiss Mfg. Co.....Toledo, O.
Digestive Ferments Co.....Detroit, Mich.
Di Palma Company.....New Rochelle, N. Y.
Fairbanks, Morse Co.....Chicago, Ill.
Ford Co., J. B.....Wyandotte, Mich.
Gilliland Laboratories.....Marietta, Pa.
Hancock, John, Life Ins. Co....Boston, Mass.
Hoffman-LaRoche.....New York, N. Y.
Horlick's Malted Milk.....Racine, Wis.
Luellen, Lawrence W.....New York, N. Y.
Lyons Sanitary Urn Co.....New York, N. Y.
Metropolitan Life Ins. Co....New York, N. Y.
Nujol Company.....New York, N. Y.
Phillips, Chas. H., Chemical Co.....
New York, N. Y.
Terre Haute San. Garbage Container...
Terre Haute, Ind.
Wallace & Tiernan Co.....Newark, N. J.
Wilmot Castle Co.....Rochester, N. Y.

The editor of the JOURNAL might be accused of favoritism if he attempted to point out the

CONVENTION HEADQUARTERS
FIFTY-THIRD ANNUAL MEETING
HOTEL STATLER, DETROIT, MICHIGAN

very high spots in the Section programs. Special interest, however, is attached this year to the program of the Child Hygiene and Sanitary Engineering Sections because of the meetings of the American Child Health Association and the American Society of Civil Engineers which immediately and respectively precede and follow the A.P.H.A. meeting. The Public Health Administration Section offers an extra treat with an address by United States Senator Ferris. One session of the Laboratory Section will be devoted to a discussion of diphtheria control and the Vital Statistics Section will dwell on the relationship between climate and ill health. The Clinic on Printed Matter of the Health Education and Publicity Section will be devoted this year to State and City Bulletins.

The preliminary program is given in full on page 774. The scientific sessions begin on Monday, October 20, at 9 A.M. and end on Thursday at noon. The October JOURNAL will carry more information, and railroad certificates will be mailed to members of the Association about September 5. A hotel reservation blank is printed in this issue for your use. If you use it early you will be sure of getting the kind of accommodations you want. The Local Committee is arranging for your entertainment. Plan now to attend!

FIFTY-THIRD ANNUAL MEETING

PRELIMINARY PROGRAM OF THE SCIENTIFIC SECTIONS

Hotel Statler, Detroit, October 20-23 1924.

PUBLIC HEALTH ADMINISTRATION

FIRST SESSION

REPORT OF COMMITTEE ON PUBLIC HEALTH NOMENCLATURE. *Chairman*, M. P. Ravenel, M.D., *University of Missouri, Columbia, Mo.*

PREVENTIVE MEDICINE IN INDUSTRY. Guy L. Kiefer, M.D., *Detroit, Mich.*

REPORT OF COMMITTEE ON VENEREAL DISEASES. *Chairman*, William A. Evans, M.D., *Chicago Tribune, Chicago, Ill.*

THE DICK TEST AND IMMUNITY RESULTS WITH SCARLET FEVER TOXIN. Abraham Zingher, M.D., Dr.P.H., *New York City.*

Demonstration of Reactions and Illustration by Lantern Slides.

Discussion. Haven Emerson, M.D., *New York City*, and Charles V. Craster, M.D., D.P.H., *Newark, N. J.*

SECOND SESSION

Joint Session with Michigan Public Health Association

WHAT IS EXPECTED OF HEALTH DEPARTMENTS. Honorable Woodbridge N. Ferris, *U. S. Senator from Michigan.*

PUBLIC HEALTH PRACTICE OF SMALL CITIES IN CONNECTICUT. Ira V. Hiscock, C.P.H., *Department of Public Health, Yale University, New Haven, Conn.*

A COMMUNITY CHILD HEALTH SURVEY OF CITIES OF 40,000 TO 70,000 POPULATION. George T. Palmer, Dr.P.H., and Philip S. Platt, C.P.H., *Director, and Associate Director, Bureau of Research, American Child Health Association, New York City.*

REPORT OF COMMITTEE ON MUNICIPAL HEALTH DEPARTMENT PRACTICE. *Chairman*, C.-E. A. Winslow, Dr.P.H., *Professor of Public Health, Yale University, New Haven, Conn.*

Discussion. W. S. Rankin, M.D., *Field Director, Committee on Municipal Health Department Practice, American Public Health Association.* Paul Preble, M.D., *Surgeon, U. S. Public Health Service, Baltimore, Md.*

THIRD SESSION

Joint Session with Public Health Nursing Section

(See second session of the Public Health Nursing Section)

FOURTH SESSION

PUBLIC HEALTH AND EVOLUTION. M. P. Ravenel, M.D., *University of Missouri, Columbia, Mo.*

REPORT OF COMMITTEE ON CONTROL OF CANCER. *Chairman*, Eugene R. Kelley, M.D., *State Commissioner of Health, Boston, Mass.*

THE CAUSE OR CAUSES OF CANCER. Adam H. Wright, M.D., *Provincial Health Board, Toronto, Ont.*

FIFTH SESSION

Joint Session with Vital Statistics Section

A PROPER PERSPECTIVE IN PUBLIC HEALTH. Hugh S. Cumming, *Surgeon General, U. S. Public Health Service, Washington, D. C.*

ADMINISTRATIVE USE OF VITAL STATISTICS. A. J. Chesley, M.D., *State Health Officer, Minneapolis, Minn.*

HOSPITAL MORTALITY, SECONDARY INFECTION AND COMPLICATIONS IN SCARLET FEVER, DIPHTHERIA AND MEASLES, AS A MEANS OF IMPROVING THE MEDICAL TECHNIQUE OF ISOLATION. Haven Emerson, M.D., *Department of Public Health Administration, College of Physicians and Surgeons, Columbia University, New York City.*

VIRGINIA'S ATTEMPT TO ADJUST THE COLOR PROBLEM. W. A. Plecker, M.D., *State Registrar of Vital Statistics, Richmond, Va.*

A METHOD FOR THE EARLY DETECTION OF EPIDEMIC TRENDS. (Stereopticon Illustration.) Herman N. Bundesen, M.D., *Commissioner of Health*, and A. W. Hedrich, C.P.H., *Director of Surveys, Department of Health, Chicago, Ill.*

LABORATORY

FIRST SESSION

THE INFLUENCE OF INTENSIVE WORK ON DIPHTHERIA CARRIERS UPON THE DIPHTHERIA MORBIDITY. William R. Stokes, M.D., John F. Hogan, M.D., and C. Lerly Ewing, *Bureau of Bacteriology and Communicable Diseases, Health Department, Baltimore, Md.*

IS IT POSSIBLE TO ELIMINATE DIPHTHERIA AMONG SCHOOL CHILDREN IN A THIRD CLASS CITY BY THE USE OF TOXIN-ANTITOXIN IMMUNIZATION? F. W. Sears, M.D., *District Health Officer, Syracuse, N. Y.*

IMMUNITY RESULTS OBTAINED WITH DIPHTHERIA TOXOID (ANATOXIN) IN THE PUBLIC SCHOOLS OF NEW YORK. Wm. H. Park, M.D., and Abraham Zingher, M.D., *Health Department Laboratories, New York City.*

INTRACUTANEOUS TITRATION OF DIPHTHERIA ANTITOXIN AND VIRULENCE TEST WITH RABBITS (with demonstration). Donald T. Fraser, M.B., *Department of Hygiene and Preventive Medicine, University of Toronto, Toronto, Ont.*

SECOND SESSION

REPORT OF COMMITTEE ON STANDARD METHODS. *Chairman*, Professor Edwin O. Jordan, *Department of Hygiene and Bacteriology, University of Chicago, Chicago, Ill.*

RESPIRATION OF THE TUBERCLE BACILLUS. F. G. Novy, M.D., and M. H. Soule, M.D., *University of Michigan, Ann Arbor, Mich.*

THE PRESERVATION OF REAGENTS FOR THE WASSERMANN TEST. Thomas G. Hull, Ph.D., *Bureau of Laboratories, State Department of Health, Springfield, Ill.*

AEROBIC SPORE FORMING LACTOSE FERMENTING ORGANISMS AND THEIR SIGNIFICANCE IN WATER ANALYSIS. John F. Norton, Ph.D., and J. J. Weight, S.M., *Department of Hygiene and Bacteriology, University of Chicago, Chicago, Ill.*

THE MORGAN GROUP OF PARATYPHOID BACILLI. Professor Max Levine, G. A. Ajwani, and J. C. Weldin, *Department of Bacteriology, Iowa State College, Ames, Ia.*

THIRD SESSION

Joint Session with **Sanitary Engineering Section, and with Sanitary Engineering Division, American Society of Civil Engineers**

(See Third Session of Sanitary Engineering Section)

SANITARY ENGINEERING

FIRST SESSION

REPORT OF COMMITTEE ON MOSQUITO CONTROL. *Chairman*, M. Z. Bair, *State Board of Health, Little Rock, Ark.*

WHAT THE SANITARY ENGINEER CAN DO FOR MOSQUITO CONTROL AND MALARIA CONTROL. J. A. Le Prince, *Senior Sanitary Engineer, U. S. Public Health Service, Washington, D. C.*

REPORT OF COMMITTEE ON BATHING PLACES. *Chairman*, Geo. W. Simons, Jr., *State Board of Health, Jacksonville, Fla.*

REPORT OF COMMITTEE TO COÖPERATE WITH INTERNATIONAL CONFERENCE ON SANITARY ENGINEERING. *Chairman*, Geo. W. Fuller, *Consulting Engineer, New York City.*

SECOND SESSION

REPORT OF COMMITTEE ON AIR. *Chairman*, Geo. A. Soper, Ph.D., *Managing Director, American Society for the Control of Cancer, New York City.*

THE SUPPLYING OF WATER TO VESSELS IN THE UNITED STATES. Arthur E. Gorman, *Assistant Sanitary Engineer, U. S. Public Health Service, Washington, D. C.*

REPORT OF COMMITTEE ON WATER SUPPLY AND PURIFICATION. *Chairman*, Geo. W. Fuller, *Consulting Engineer, New York City.*

THIRD SESSION

Joint Session with **Laboratory Section and with Sanitary Engineering Division, American Society of Civil Engineers**

U. S. TREASURY DEPARTMENT WATER STANDARDS.
Discussion of Report of Advisory Committee on Official Water Standards.

JOINT DISCUSSION OF REPORTS OF COMMITTEES ON TERMS USED IN SEWERAGE AND SEWAGE DISPOSAL PRACTICE.
Committee on the Definition of Terms Used in the Field of Sewerage and Sewage Disposal, Sanitary Engineering Division, A.S.C.E. *Chairman*, Professor George C. Whipple, *Harvard University, Cambridge, Mass.*
Committee on Sewerage and Sewage Disposal, Sanitary Engineering Section, A.P.H.A. *Chairman*, John F. Skinner, *Deputy City Engineer, Rochester, N. Y.*

DIFFERENTIATION IN THE COLON AEROGENES GROUP AND ITS SIGNIFICANCE IN WATER PURIFICATION. J. J. Hinman, Jr., *Professor of Sanitary Chemistry, University of Iowa, Iowa City, Ia.*

SEWAGE ANALYSIS AND ITS INTERPRETATIONS. F. W. Mohlman, M.D., *Chemist of the Sanitary District, Chicago, Ill.*

FOURTH SESSION

REPORT OF COMMITTEE ON REFUSE COLLECTION AND DISPOSAL. *Chairman*, M. N. Baker, *Associate Editor*, ENGINEERING NEWS-RECORD, *New York City.*

REPORT OF SPECIAL COMMITTEE ON SLUDGE DISPOSAL. *Chairman*, Langdon Pearse, *Sanitary Engineer, Chicago, Ill.*

REPORT OF COMMITTEE ON SEWERAGE AND SEWAGE DISPOSAL. *Chairman*, John F. Skinner, *Deputy City Engineer, Rochester, N. Y.*

SANITATION PROBLEMS IN RESORTS AND TOURIST CAMPS. John M. Hepler, *Assistant Sanitary Engineer, State Department of Health, Lansing, Mich.*

INDUSTRIAL HYGIENE

FIRST SESSION

REPORT OF THE COMMITTEE ON THE EXTENSION OF INDUSTRIAL HYGIENE, A SYMPOSIUM:

THE RÔLE OF THE FEDERAL GOVERNMENT IN THE EXTENSION OF INDUSTRIAL HYGIENE. W. S. Bean, M.D., *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

THE RÔLE OF THE STATE IN THE EXTENSION OF INDUSTRIAL HYGIENE. E. R. Hayhurst, M.D., *Professor of Hygiene, Ohio State University, Columbus, O.*

INDUSTRIAL HYGIENE BY EMPLOYEES AND ORGANIZATIONS. Frank L. Rector, M.D., *National Industrial Conference Board, New York City.*

INDUSTRIAL HYGIENE BY WORKERS' ORGANIZATIONS. *Chairman*, Geo. M. Price, M.D., *Director of Union Health Center, New York City.*

SECOND SESSION

REPORT OF THE COMMITTEE ON THE EXTENSION OF INDUSTRIAL HYGIENE, CONTINUED:

INDUSTRIAL HYGIENE BY EMPLOYEES. Clarence D. Selby, M.D., *Toledo, O.*

INDUSTRIAL HYGIENE PROMOTION IN SMALL PLANTS. Carey P. McCord, M.D., *Cincinnati, O.*

REPORT FROM THE INDUSTRIAL COMMISSION OF NEW YORK STATE. Leland Cofer, M.D., *Surgeon, U. S. Public Health Service, New York City.*

REPORT OF THE COMMITTEE ON PAINTERS' HAZARDS. *Chairman*, Alice Hamilton, M.D., *Harvard Medical School, Boston Mass.*

THIRD SESSION

ANTHRAX AS A CONTINUING AND PROBABLY INCREASING INDUSTRIAL HAZARD. Henry Field Smyth, M.D., *Acting Chairman*, Industrial Hygiene Section, A.P.H.A.

STANDARDIZED CLASSIFICATION OF INDUSTRIAL MORBIDITY STATISTICS, REPORT OF A SPECIAL COMMITTEE. Wade Wright, M.D., *Harvard Medical School, Boston, Mass.*

NEURO-PSYCHIATRY IN GENERAL MEDICINE AND INDUSTRIAL SURGERY. E. C. Brown, M.D., *Mansfield Sheet and Tin Plate Co., Mansfield, O.*

THE PHILADELPHIA ASSOCIATION OF INDUSTRIAL PHYSICIANS. E. H. McIlvain, M.D., *Philadelphia, Pa.*

VITAL STATISTICS

FIRST SESSION

SOME STATISTICAL ASPECTS OF PNEUMONIA. Edwin Bidwell Wilson, *Professor of Vital Statistics, Harvard School of Public Health, Boston, Mass.*

WHAT THE PRACTICING PHYSICIAN FINDS OF VALUE IN VITAL STATISTICAL TABLES. Earl Ingram Carr, M.D., *Lansing, Mich.*

REPORT OF COMMITTEE ON PUBLIC HEALTH CLIMATOLOGY. *Chairman*, E. W. Kopf.

Discussion. C. C. Pierce, M.D., *Senior Surgeon, U. S. Public Health Service, Washington, D. C.*

SEASONAL VARIATION OF TUBERCULOSIS MORTALITY. Robert Watson, *National Tuberculosis Association, New York City.*

SECOND SESSION

MORBIDITY REPORTS WITH SPECIAL REFERENCE TO THE COLLECTION OF DATA. Bolivar J. Lloyd, M.D., *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

Discussion. S. J. Crumbine, M.D., *Director of Public Health Relations, American Child Health Association, New York City.*

TREND OF MORTALITY IN CHILDREN OF PRE-SCHOOL AGE, 1900–1922. E. W. Kopf, *Metropolitan Life Insurance Co., New York City.*

REPORT OF COMMITTEE ON CONTRIBUTORY CAUSES OF DEATH. *Chairman*, George H. Van Buren, *Metropolitan Life Insurance Company, New York City.*

REPORT OF COMMITTEE ON PROFESSIONAL STANDARDS FOR STATISTICIANS. *Chairman*, E. W. Kopf, *Metropolitan Life Insurance Co., New York City.*

REPORT OF COMMITTEE ON STANDARDS OF VITAL STATISTICS TEACHING. *Chairman*, John W. Trask, M.D., *U. S. Marine Hospital, Buffalo, N. Y.*

THIRD SESSION

Joint Session with Health Education and Publicity Section

THE PREPARATION OF VITAL STATISTICS FOR EDUCATIONAL USE. Donald B. Armstrong, M.D., *Metropolitan Life Insurance Company, New York City.*

THE USE OF VITAL STATISTICS IN HEALTH EDUCATION. Evart G. Routzahn, *Russell Sage Foundation, New York City.*

Discussion. Geo. T. Palmer, Dr.P.H., *American Child Health Association, New York City.*

FOURTH SESSION

Joint Session with Public Health Administration Section

(See Fifth Session of Public Health Administration Section)

CHILD HYGIENE

FIRST SESSION

THE RESPONSIBILITIES OF BOARDS OF HEALTH AND BOARDS OF EDUCATION IN PREVENTING BLINDNESS IN CHILDREN. Lewis H. Carris, *Managing Director, National Committee for the Prevention of Blindness, New York City.*

THE SOCIAL AND EDUCATIONAL SIDE OF SCHOOL HEALTH SUPERVISION. Homer Folks, *Secretary, State Charities Aid Association, New York City.*

Discussion. Charles H. Keene, M.D., *Director, Bureau of Health Education, State Department of Public Instruction, Harrisburg, Pa.*

RECREATION AND THE WELL-BEING OF THE CHILD. Eugene T. Lies, *Special Representative, Playground and Recreation Association of America, New York City.*

Discussion. Frank Cody, *Superintendent of Schools, Detroit, Mich.*

THE FUTURE TRAINING OF CHILD HYGIENE WORKERS. John Sundwall, M.D., *Director, Department of Hygiene and Public Health, University of Michigan, Ann Arbor, Mich.*

Discussion. Ruth E. Boynton, M.D., *Director, Division of Child Hygiene, State Board of Health, Minneapolis, Minn.*

A PLEA FOR MENTAL CLINICS IN THE PUBLIC SCHOOLS. Frank Norbury, M.D., *Medical Director, The Norbury Sanatorium, Jacksonville, Ill.*

Discussion. V. V. Anderson, M.D., *formerly Director, Division on Prevention of Delinquency, National Committee on Mental Hygiene, New York City*, and Groves B. Smith, M.D., *Detroit, Mich., President American Association for the Study of the Feeble-minded.*

LUNCHEON SESSION

HEALTH PROBLEMS IN EDUCATION. Committee on Health Problems in Education. *Chairman*, Merrill E. Champion, M.D.

SECOND SESSION

THE BENEFITS TO THE HEALTH OF THE CUMMUNITY DERIVED FROM PRENATAL CARE. Walter E. Welz, M.D., *Director, Prenatal Clinic, Department of Health, Detroit, Mich.*

Discussion. Alexander M. Campbell, M.D., F.A.C.S., *Director, Prenatal Clinic, and Consulting Obstetrician of the Blodgett Memorial Hospital, Grand Rapids, Mich.*, and Francis Dufield, M.D., *President, Detroit Department of Health, Detroit, Mich.*

EFFECTS OF INTERFERENCE IN OBSTETRICAL CASES. Ward F. Seeley, M.D., *Detroit, Mich.*

CROTCHETS OF CHILDREN AND HOW TO OVERCOME THEM. Helen T. Woolley, Ph.D., *Assistant Director, Merrill-Palmer School, Detroit, Mich.*

Discussion. Nellie L. Perkins, *Director, Wayne County Psychopathic Clinic, Detroit, Mich.*

DENTAL HYGIENE FOR THE CHILD. C. N. Johnson, D.D.S., *Chicago, Ill., President-elect, American Dental Association.*

Discussion. William A. Giffen, D.D.S., *Detroit, Mich., President, American Dental Association.*

THIRD SESSION

Joint Session with Food and Drugs Section

THE THERAPEUTIC VALUE OF SUNLIGHT AND ULTRA-VIOLET IRRADIATION. Alfred S. Hess, M.D., *Clinical Professor of Pediatrics, University and Bellevue Hospital Medical College, New York City.*

THE RELATIONSHIP BETWEEN PASTEURIZATION COUNTS IN MILK AND GASTRO-ENTERITIS IN CHILDREN. J. H. Shrader, Ph.D., *State Board of Health, Baltimore, Md.*

THE FOOD VALUE OF EDIBLE GELATIN AND ITS PLACE IN SPECIAL DIETARIES. Thomas B. Downey, Ph.D., *Mellon Institute of Industrial Research, Pittsburgh, Pa.*
TEACHING CHILDREN TO LIKE WHOLESOME FOOD. Lydia J. Roberts, *School of Education, University of Chicago, Chicago, Ill.*
Discussion. O. B. Nesbit, M.D., *Chief Medical Inspector of Schools, Gary, Ind.*

FOOD AND DRUGS

FIRST SESSION

ADDRESS OF THE CHAIRMAN. W. D. Bigelow, Ph.D., *Director Research Laboratories, National Canners Association, Washington, D. C.*
MUNICIPAL MEAT INSPECTION. W. C. Hollingsworth, M.D., *Utica, N. Y.*
REPORT OF COMMITTEE ON CONTROL OF MEAT, MILK AND OTHER DAIRY PRODUCTS. *Chairman*, W. H. Lipman, M.D., *Medical Director, Swift & Co., Chicago, Ill.*
REPORT OF COMMITTEE ON COLD STORAGE. *Chairman*, Peter H. Bryce, M.D., *Ottawa, Ont.*

SECOND SESSION

INFLUENCE OF COOKING AND CANNING ON VITAMIN CONTENT OF FOODS. Walter H. Eddy, *Professor of Physiological Chemistry, Teachers College, Columbia University, New York City.*
REPORT OF COMMITTEE ON PROBLEMS OF CANNING. *Chairman*, W. D. Bigelow, Ph.D., *Director, Research Laboratories, National Canners Association, Washington, D. C.*
REPORT OF COMMITTEE ON DISTRIBUTION, PREPARATION AND MARKETING OF FOODS. *Chairman*, Willard E. Ward, *Board of Health, Brookline, Mass.*
REPORT OF COMMITTEE ON NUTRITIONAL PROBLEMS. *Chairman*, Henry C. Sherman, *Columbia University, New York City.*

THIRD SESSION

Joint Session with Child Hygiene Section

(See Third Session of Child Hygiene Section)

HEALTH EDUCATION AND PUBLICITY

FIRST SESSION

CLINIC ON PRINTED MATTER

CITY AND STATE HEALTH BULLETINS
INTRODUCTION. Ira V. Hiscock, C.P.H., *Department of Public Health, Yale University, New Haven, Conn.*
STATE BULLETINS. B. R. Rickards, *State Department of Health, Albany, N. Y.*
CITY BULLETINS. John L. Rice, M.D., *Department of Health, New Haven, Conn.*
HEALTH MAGAZINES, INCLUDING BULLETINS OF VOLUNTEER AGENCIES. Arthur Tomalin, *Director of Publications, American Child Health Association, New York City.*
SUMMARY. Harold S. Buttenheim, *Editor*, THE AMERICAN CITY, *New York City.*

LUNCHEON SESSION

Joint Session with Public Health Nursing Section

Chairman, ELIZABETH G. FOX, R.N.

CARRYING HEALTH TO THE HOME.

SECOND SESSION

Joint Session with Vital Statistics Section

(See Third Session of the Vital Statistics Section)

LUNCHEON SESSION

PREPARING REPORTS THAT COMMAND INTEREST OF YOUR BOARD OR COMMITTEE.
(Exhibition and discussion of the kind of report that is alive and sparkling with "selling" interest as contrasted with the usual dull statistical report).

DINNER SESSION

CARTOONS AND CHALK TALKS.

THIRD SESSION

SYMPOSIUM ON NEWSPAPER PUBLICITY

INTRODUCTION. E. G. Burrows, *Department of Journalism, University of Michigan, Ann Arbor, Mich.*
THE HEALTH WORKER'S POINT OF VIEW. P. P. Jacobs, Ph.D., *National Tuberculosis Association, New York City.*
THE NEWSPAPER PERSON'S POINT OF VIEW. Lee A. White, DETROIT NEWS, *Detroit, Mich.*
Discussion. Marjorie Delevan, *State Department of Health, Lansing, Mich.*
(The audience will be supplied with newspaper articles discussed by speakers.)

PUBLIC HEALTH NURSING

FIRST SESSION

REPORT OF COMMITTEE TO FORMULATE STANDARDS FOR POSITIONS IN PUBLIC HEALTH NURSING. Mabel E. Welsh, R.N., *East Harlem Nursing and Health Demonstration, New York City.*

Discussion. ACADEMIC EDUCATION AND PUBLIC HEALTH NURSING TRAINING. Gertrude E. Hodgman, R.N., *Educational Secretary, National Organization for Public Health Nursing, New York City.* PUBLIC HEALTH NURSING EXPERIENCE. Ruth Houlton, R.N., *Director Public Health Nursing, State Board of Health, St. Paul, Minn.*

General Discussion. Arthur T. McCormack, M.D., *State Commissioner of Health, Louisville, Ky.*

SECOND SESSION

Joint Session with Public Health Administration Section

ESSENTIALS IN THE ADMINISTRATION OF A PUBLIC HEALTH NURSING SERVICE. R. G. Leland, M.D., *Columbus, O.*

Discussion. Walter H. Brown, M.D., *Director, Child Health Demonstration, Mansfield, O.* Grace Ross, R.N., *Detroit, Mich.*

SOME EXPERIENCES IN PUBLIC HEALTH NURSING FOR THE PROMOTION OF MATERNITY AND CHILD HYGIENE. M. S. Fraser, M.D., *Epidemiologist and Corresponding Secretary, Provincial Board of Health, Winnipeg, Man.*

Discussion. Merrill E. Champion, M.D., *Director, Division of Child Hygiene, State Health Department, Boston, Mass.*

ADMINISTRATIVE CONTROL OF CONTAGIOUS DISEASES. Charles V. Craster, M.D., D.P.H., *Health Officer, Newark, N. J.*

Discussion. Louis I. Harris, M.D., *Director, Bureau of Preventable Diseases, Department of Health, New York City,* and D. C. Bowen, *State House, Trenton, N. J.*

FOUR YEARS' EXPERIENCE IN PUBLIC HEALTH ADMINISTRATION WITHOUT MEDICAL INSPECTION. Francis E. Harrington, M.D., *Commissioner of Health, Minneapolis, Minn.*

GENERAL SESSIONS

FIRST SESSION

ADDRESSES OF WELCOME. R. M. Olin, M.D., *Commissioner of Health of Michigan.* Henry F. Vaughan, D.P.H., *Commissioner of Health of Detroit.* William DeKleine, M.D., *President, Michigan Public Health Association.*

ADDRESS. William H. Park, M.D., PRESIDENT, AMERICAN PUBLIC HEALTH ASSOCIATION.

HEALTH WORK OF THE LEAGUE OF NATIONS. Th. Madsen, M.D., *Director, State Serum Institute, Copenhagen, Denmark; Chairman, Health Section of the League of Nations, Geneva, Switzerland.*

Following this Session there will be a reception with dancing and entertainment.

SECOND SESSION

VALUES IN PUBLIC HEALTH WORK

Chairman, C.-E. A. Winslow, Dr.P.H.

VALUES IN THE CONTROL OF COMMUNICABLE DISEASES. Louis I. Harris, M.D., *Director, Bureau of Preventable Diseases, Department of Health, New York City.*

VALUES IN THE CONTROL OF ENVIRONMENT. Abel Wolman, *Director, Bureau of Sanitary Engineering, State Department of Health, Baltimore, Md.*

VALUES IN THE MAINTENANCE OF HEALTH:

a. THE CHILD. Walter H. Brown, M.D., *Director, Child Health Demonstration, Mansfield, Ohio.*

b. THE WORKER. E. R. Hayhurst, M.D., *Professor of Hygiene, Ohio State University, Columbus, Ohio.*

Discussion. Lee K. Frankel, Ph.D., *Second Vice-President, Metropolitan Life Ins. Co., New York City.*

c. THE ADULT. Linsly Williams, M.D., *Managing Director, National Tuberculosis Association, New York City.*

Summary of the Discussion. Haven Emerson, M.D., *Department of Public Health Administration, College of Physicians and Surgeons, Columbia University, New York City.*

A PUBLIC HEALTH FORUM

W. S. RANKIN, M.D., *Chairman of the Forum Committee, Presiding*

THE NURSING SERVICE: WHEN TO GENERALIZE, WHEN TO SPECIALIZE.

Discussion opened by M. A. Sargent, R.N., *Director of Public Health Nursing, Detroit Health Department, Detroit, Mich.*

SHOULD BED-SIDE NURSING BE INCLUDED IN A GENERALIZED PLAN OF PUBLIC HEALTH NURSING?

THE USE OF THE ACTIVE AND LATENT INTEREST OF CIVIC AND RELIGIOUS ORGANIZATIONS IN PUBLIC HEALTH WORK.

Discussion opened by J. J. Durrett, M.D., *Health Officer, Memphis, Tenn.*

THE CORRELATION OF OFFICIAL AND UNOFFICIAL AGENCIES IN THE PUBLIC HEALTH PROGRAM.

Discussion opened by Charles F. Wilinski, M.D., *Director, Public Health Unit, Boston, Mass.*

QUESTION BOX.

The Advisory Committee of the Forum Committee.

DINNER CONFERENCE ON EDUCATION OF SANITARIANS

Chairman, VICTOR C. VAUGHAN, M.D.

Responsibility of the Organized Public Health Profession for the Standardization and Improvement of Public Health Training.

A Consideration of the Activities in Public Health Training which Could Be Advantageously Undertaken by the AMERICAN PUBLIC HEALTH ASSOCIATION.

TWO MEETINGS YOU SHOULD ATTEND

Health workers have this year an unusual opportunity to attend two meetings of national importance in one journey. The second annual meeting of the American Child Health Association will be held in Kansas City, October 14–16, and during the week following the Fifty-third Annual Meeting of the American Public Health Association will be held in Detroit.

Each meeting has an attractive program. That of the American Child Health Association shows an important session on Tuesday, October 14, on "Training Leaders for Child Health Work." Physicians, health educators, public health nurses and community organizers have been selected as the ideal leaders for the work, and the essentials of preparation for each group are to be outlined. It will be interesting to compare the conclusions drawn from this afternoon of discussion with the remarks of Dr. John Sundwall, when the gives his ideas on the future training of child hygiene workers before the Child Hygiene Section of the American Public Health Association the week following. Training for child health work will also be part of the Dinner Conference on Education, to be conducted by the A.P.H.A. Committee on Standardization of Public Health Training.

A feature of the American Child Health Association meetings will be the opportunity for group discussion after the major presentation. Time will be allowed at the close of the session on training for the nurses to get together by themselves to discuss detailed branches of their work, for the community organizers, and the teachers to do the same thing.

"Problems of Late Childhood and Early Adolescence" are scheduled for Wednesday morning under the divisions: Physical Aspects, Mental Aspects, Educational Aspects, Physical Training.

The subject for the A.C.H.A. on Wednesday afternoon is essentials of community organization for child health work, in connection with which the questions "What are the fundamentals in community protection of child health?" and "How far is health work an economic possibility?" will be answered, and an attempt will be made to delineate the relation of the press to community child health work and the responsibility of public and private agencies and of the community in carrying out the child health program.

On Thursday, some special aspects of child health work have been chosen for discussion. They are:

1. Findings of Survey of 86 Cities.
2. Participation of State and Local Officials.
3. Report of the 1924 Health Education Conference at Massachusetts Institute of Technology.
4. Other Reports of A.C.H.A. activities.

On Thursday afternoon, the essentials of community organizations for child health work will be continued in two sections, the first covering health supervision and education of mothers, babies and younger children; the second covering health work in the schools.

The sessions will close Thursday afternoon with a joint meeting with the Kansas City Clinical Society on Pediatrics and Obstetrics.

ANNUAL MEETING INFORMATION

FOR the second time in the history of the Association, an Annual Meeting will be held in Detroit. The first time was in 1883, eleven years after the Association was founded in New York. At that meeting Dr. Ezra Hunt of Trenton, N. J., was president.

Detroit, so often called "Beautiful and Dynamic," is a delightful city in which to hold a meeting. There is everything that a large city affords in the way of up-to-date hotels, amusements and recreation, besides offering many wonderful and beautiful trips on the river and lakes. It is but a step over into Canada, a treat to those who live far from the border, or who have never been "abroad." Many things just across the line are different enough to be interesting.

An overnight steamer runs to Buffalo, where one may reach Niagara Falls in half an hour, spend the day there and return that same evening by boat, arriving in Detroit the next morning.

A reduction of one-quarter of the round trip rates will be available to members of the American Public Health Association on the identification certificate plan. This reduction has been granted by passenger associations covering practically the entire United States and Canada on all tickets costing over $1.00. The railroads require that the certificate shall be presented in each case by the person whose name appears thereon when purchasing his ticket.

Arrangements have been made whereby tickets reading between Detroit and Buffalo via rail lines will be good for transportation via the Detroit and Cleveland Navigation Company between these points without additional charge except for meals and berth. Likewise, tickets reading between Cleveland and Buffalo via rail lines will be good via the Cleveland and Buffalo Transit Company without other additional charge than meals and berth.

DATE OF SALE

The dates of sale will vary according to the location of starting point. In general, they cover the period of October 16 to 22, inclusive. Local agents will give definite information regarding starting dates.

FINAL RETURN LIMIT

Tickets will be validated at Detroit by the respective agents at the regular ticket offices of the lines used, on any date after arrival. They must be used returning to reach the original point not later than midnight of October 29.

ELIGIBILITY

All members of the Association, and dependent members of their families may secure reduced rates. Only one identification certificate is required for each family.

IDENTIFICATION CERTIFICATES

Identification certificates will be mailed to all members of the Association about September 1. These will entitle members to the special fare when presented at the local ticket office. Without the identification certificate a reduced rate cannot be obtained. If, by any chance, you do not receive your certificate by September 15, and you expect to attend the Detroit meeting, kindly advise the General Secretary, 370 Seventh Avenue, New York, N. Y., enclosing self-addressed envelope, and a certificate will be mailed to you at once.

RAILROAD FARES TO DETROIT

Railroad fares from various centers to Detroit are indicated below. Pullman rates include surcharges.

	One Way	Fare and One-Half	Lower Berth	Upper Berth
Atlanta, Ga.	$26.68	$40.02	$8.25	$6.60
Baltimore, Md.	21.55	32.33	6.38	5.10
Boston, Mass.	26.92	40.38	7.50	6.00
Buffalo, N. Y.	9.00	13.50	3.00	2.40
Cleveland, O.	5.93	8.90	3.75	3.00
Chicago, Ill.	9.81	14.72	3.75	3.00
Cincinnati, O.	9.38	13.57	3.75	3.00
Dallas, Tex.	41.79	62.60	12.75	10.20
Denver, Colo.	47.09	70.64	14.63	11.70
Indianapolis, Ind.	9.58	14.37	3.75	3.00
Jacksonville, Fla.	38.90	58.35	12.00	9.60
Kansas City, Mo.	26.35	39.53	8.25	6.60
Los Angeles, Cal.	89.95	134.93	27.38	21.90
Louisville, Ky.	13.52	20.28	3.75	3.00
Memphis, Tenn.	26.29	39.44	9.38	7.50
Minneapolis, Minn.	24.47	36.71	7.50	6.00
Nashville, Tenn.	20.24	30.36	7.50	6.00
New Orleans, La.	39.66	59.49	12.75	10.20
New York, N. Y.	24.82	37.23	6.38	5.10
Omaha, Neb.	27.74	41.61	8.25	5.60
Philadelphia, Pa.	23.23	34.85	6.38	5.10
Pittsburgh, Pa.	10.65	15.98	3.75	3.00
Portland, Ore.	87.24	130.86	27.38	21.90
St. Louis, Mo.	17.76	26.64	4.50	3.60
Salt Lake City, Utah	64.88	97.32	19.13	15.30
San Francisco, Cal.	89.95	134.93	27.38	21.90
Seattle, Wash.	87.24	130.86	27.38	21.90
Toronto, Can.	7.90	11.85	3.00	2.40
Washington, D. C.	21.52	32.28	6.38	5.10

DETROIT HOTELS

Headquarters for the fifty-third annual meeting of the Association will be at the Hotel Statler. A list of Detroit hotels with room rates is given here, together with a reservation blank, which you are urged to use as early as possible. Apply now and avoid inconvenience later.

DOWNTOWN SECTION OF DETROIT, SHOWING LOCATION OF THE A.P.H.A. HEADQUARTERS

HOTELS
1. *Statler*
2. *Tuller*
3. *Fort Shelby*
4. *Addison*
5. *Norton*
6. *Normandie*

HOTELS
7. *Madison-Lennox*
8. *Library*
9. *Lincoln*
10. *Berkshire*
11. *Iroquois*
12. *Dixieland*

HOTELS
13. *Griswold*
W. *Wolverine*

PUBLIC BUILDINGS
14. *Post Office*
15. *Board of Commerce*
16. *City Hall*
17. *County Building*
18. *Police Headquarters*
Dept. of Health
19. *Municipal Court Bldg.*
20. *City Service Bldg.*
B. of H. Clinics
21. *Old B. of H. Bldg.*
22. *B. of H. Laboratories*
23. *St. Mary's Hospital*
24. *Receiving Hospital*

DEPOTS
A. *Union Depot*
B. *Grand Trunk*
C. *Interurban*

Applications for rooms should be made directly to the hotels.

Hotel Addison

Room, one person, with bath.....$3.00
Room, two persons, without bath.....$3.50
Room, one person, without bath.....$2.00
Room, two persons, with bath.....$5.00

Dixieland Inn

Room, one person, without bath.....$2.00
Room, one person, with bath.....$3.50
Room, one person, with shower.....$3.00
Room, two persons, without bath.....$3.00
Room, two persons, with bath.....$5.00
Room, two persons, with shower.....$4.00

Fort Shelby Hotel

Room, one person, without bath.....$2.50
Room, one person, with bath.....$3.00-$5.00
Room, two persons, without bath.....$3.50
Room, two persons, with bath.....$5.00-$8.00

Hotel Henry Clay

Room, one person, without bath.....$1.50
Room, one person, with shower.....$2.00
Room, one person, with bath.....$2.50
Room, two persons, with shower.....$3.00
Room, two persons, with bath.....$3.50

Hotels Madison and Lenox

Room, one person, without bath.....$2.00
Room, one person, with bath.....$3.00
Room, two persons, without bath.....$3.00
Room, two persons, with bath.....$4.00

Hotel Normandie

Room, one person, without bath...$1.50-$2.50
Room, one person, with bath.....$3.00-$3.50
Room, two persons, without bath..$3.00-34.00
Room, two persons, with bath.....$5.00-$6.00

Hotel Norton

Room, one person, without bath.....$2.00
Room, one person, with bath.....$2.75-$3.00
Room, two persons, without bath.....$4.00
Room, two persons, with bath.....$5.00

Hotel Ste. Claire

Room, one person, without bath....$1.50-$2.00
Room, one person, with bath.....$2.50-$3.00
Room, two persons, without bath.....$3.00
Room, two persons, with bath.....$4.50-$5.00

Spa Stag Hotel

Special rates of $2.00 and $2.50 per day, including swimming pool and showers.

Hotel Statler

Room, one person, with shower....$3.00-$3.50
Room, one person, with bath.....$4.00
Room, two persons, with shower...$5.00-$5.50
Room, two persons, with bath.....$7.00
Suites $13.00

Hotel Tuller

Room, one person, with bath.....$3.00-$6.00
Room, two persons, with bath.....$6.00-$8.00
Specially large double rooms.....$9.00-$10.00

Hotel Wolverine

Room, one person, with bath.....$3.00-$6.00
Room, two persons, with bath.....$5.00-$8.00

(Cut off on this line)

HOTEL RESERVATION BLANK

To.....
(Name of Hotel)

Please reserve for me.....rooms for.....persons for the A. P. H. A. Meeting. (Cross [X] is placed after my preference.)

With bath: Without bath:
Single room .....Single room .....
Double room .....Double room .....
Maximum rate per day for room.....
Minimum rate per day for room.....

I expect to arrive Oct. ..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name.....
Street Address .....
City..... State.....

LIST OF MEMBERS

Proposed for election to the A. P. H. A. June 30 to July 30, inclusive.
Names of New Members are set in Light Face Type.
Names of Sponsors are set in **Bold Face** Type.

CALIFORNIA

Homer N. Calver, New York, N. Y.
Mary Elizabeth Davis, R.N., San Francisco, Cal. Consulting Nurse, Bur. Child Hygiene, State Board of Health.

CONNECTICUT

Prof. C. E. Turner, Cambridge, Mass.
Evelyn Ruth Law, R.N., Madison, Conn. General Public Health Nursing.

CUBA

Mary E. Hibbard, Havana, Cuba
Dr. Jose F. de Pazos, Havana, Cuba. Director exp. p. de Hygiene, Havana.

ILLINOIS

William F. King, M.D., Health Commissioner, Indianapolis, Ind.
Archie Jones, M.D., Dundee, Ill.
Prof. John Sundwall, Ann Arbor, Mich.
Robert M. Hathaway, M.D., Farmer City, Ill. Practice of Medicine, now entering Public Health.

INDIANA

Prof. John Sundwall, Ann Arbor, Mich.
Margaret F. Collete, Auburn, Ind. Ex-Secretary DeKalb Co. Tuberculosis Assn.
Charles C. Stroup, M.D., Bloomington, Ind. School Physician.
William F. King, M.D., Indianapolis, Ind.
O. T. Brazelton, M.D., Princeton, Ind. Health Commissioner Gibson County, Ind.

KENTUCKY

Homer N. Calver, New York, N. Y.
J. Ernest Fox, M.D., Paducah, Ky. City Health Officer.

MASSACHUSETTS

Prof. C. E. Turner, Cambridge, Mass.
Pauline E. Berman, B.S., Boston, Mass. Nutrition Worker, Federated Jewish Charities.

MICHIGAN

Prof. John Sundwall, Ann Arbor, Mich.
Norma L. Pratt, Otsego, Mich. Health Officer.

NEW HAMPSHIRE

Homer N. Calver, New York, N. Y.
Harry F. Leeds, Berlin, N. H. Health Officer.

NORTH CAROLINA

F. M. Register, M.D., Raleigh, N. C.
J. Roy Hege, M.D., Winston-Salem, N. C. County Health Officer, Forsyth County.

PENNSYLVANIA

Homer N. Calver, New York, N. Y.
Emma S. Lake, Greensburg, Pa. Exec. Secy. Westmoreland Public Health Assn.

ASSOCIATE MEMBERS

ILLINOIS

Prof. John Sundwall, Ann Arbor, Mich.
Walter Nathaniel Thomas, A.B., M.D., Chicago, Ill. Physician and Surgeon.
J. Howard Beard, M.D., Urbana, Ill.
George Thomas Stafford, Urbana, Ill. Asst. Professor Physical Diagnosis and Orthopedics, University of Illinois.

NEW YORK

S. J. D. Klein, M.D., New York, N. Y.
Denys K. Zongos, M.D., New York, N. Y.

VERMONT

John S. Horner, M.D., West Paulet, Vt.
Mrs. Mary Roberts Hull, Rupert, Vt. Child Welfare.

WISCONSIN

Prof. John Sundwall, Ann Arbor, Mich.
John G. Barnsdale, M.D., Superior, Wis.

FELLOW OF THE A. P. H. A.

FOOD AND DRUG SECTION

Harry W. Redfield, Ph.D., New York, N. Y.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 8th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to business office in New York City. In replying give age, professional training, salary requirement, previous positions held and three or more references.

Wanted: High class executive officer, preferably physician licensed in New York State, to fill position created by Medical Society State of New York. Address further inquiry to J. N. Vander Veer, M.D., The Commons, Pine and Chapel Sts., Albany, N. Y.

Wanted: By City Laboratory, Kingston, N. Y., a woman technician thoroughly experienced in bacteriology and blood chemistry. Salary for the first year, $1,500. Apply with complete information regarding qualifications, age, experience, education and references.

Wanted: Southern city of 100,000 desires assistant bacteriologist. Prefer college graduate. Position open about October 1, 1924. Address 576, B. J., care of this JOURNAL, New York address.

Junior Biochemist: An examination will be held throughout the country on October 8 to fill a vacancy in the position of technical assistant in sanitary bacteriology in the U. S. Public Health Service, Cincinnati, Ohio, and vacancies in positions requiring similar qualifications. The entrance salary is $1,860 a year. Advancement in pay may be made without change in assignment up to $2,400 a year. Competitors will be rated on chemistry, general bacteriology and elementary biology, and education, training, and experience. Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. Civil Service examiners at the post office or custom house in any city.

POSITION WANTED

Positions wanted announcements will be carried for individuals at a charge of $2.00 per insertion. Copy should be received at the New York office by the 8th of the month preceding publication.

Sanitary engineer desires responsible position with consulting engineer, architect, department of public works, water company, contractor or bureau of municipal research. Ten years' experience on construction, supervision and operation of municipal works. Painstaking, persevering, energetic, loyal and of a pleasing personality. Cornell graduate, degree in civil engineering. Licensed professional engineer. State executive. Captain of engineers, reserve corps. Interview solicited. Available September 1, 1924. Address: 307 A. M., care of this JOURNAL, New York Office.

Health Officer with experience and record of successful work, now employed as full-time director of a city health department, desires a larger opportunity. Will consider only full-time position. Salary required, $4,000 or more, depending on location and duties. References gladly furnished. Address ———

Laboratory: Position as director or assistant director of city or state laboratory wanted by man with eleven years' experience in public health work. Thirty-six years of age, single, college graduate. Fellow of the A.P.H.A. First-class references. Address 306 P. B., care of this JOURNAL, New York address.

Position Wanted as bacteriologist or serologist by young woman; B.S. degree, over four years' experience in public health and hospital laboratories. Prefer New England; would consider Middle Atlantic States. Address 312 H. A., care of this JOURNAL, New York address.

Laboratory Director: Man who has specialized in laboratory administration for several years with varied experience as director of municipal and state health laboratories desires a new position during the fall or winter. University public health education and practical experience in chemical, bacteriological and testing laboratories, and in related fields of public health. Fellow, A. P. H. A. Address 309 K. E., care of this JOURNAL, New York address.

Bacteriologist: Man with B.S., D.V.M., M.S. in bacteriology, serology, and pathology desires a position in a bacteriological laboratory or field sanitary work. Experience with U.S.P.H.S. Prefer a permanent location with chance for advancement. White, American, Protestant, twenty-seven years, and have excellent health. Address 310 S. W., care of this JOURNAL, New York address.

Translator: Position abstracting foreign medical publications is desired by Bryn Mawr graduate, seven years' resident in Europe, who has been translator in U. S. Government of German, French, Italian, Greek for five years, the past fifteen months of which were devoted exclusively to medical German. Splendid testimonials. Address Mrs. Helen Pope, Government Hotels G-H, Washington, D. C.

Wanted: Position as full time health officer or other administrative position in public health by a man who has had several years' experience and can furnish recommendations from federal, state and city officials. Address 311 C. K., care of this JOURNAL, New York address.

Bacteriologist: University graduate trained in public health, B.S. degree, is open for position with city or state health department. Has had seven years' experience in public health laboratory work and is a Fellow of the A.P.H.A. At present in charge of state laboratory. Address 301 W, care of this JOURNAL, New York address.

HEALTH OFFICER'S EXCHANGE

REPORT OF OUTBREAK OF TYPHOID FEVER DUE TO A CARRIER

The rarity of typhoid fever epidemics due to carriers suggests that the readers of the AMERICAN JOURNAL OF PUBLIC HEALTH might be interested in an epidemic that we have had recently in Bath, Maine.

The first case was reported June 24, and the next case June 27. Both cases used city water, which is chlorinated and examined every week. They had traded at different grocery stores and gave at that time a history of getting milk from separate dealers. There were no other cases reported until the morning of June 30, when, at 9:30, seven cases were reported. Up to this time, it had been in no way suggested that there might be several cases of typhoid fever in the city. Some of the physicians waited for a positive Widal reaction, instead of reporting a provisional diagnosis, which would have given me a chance to check the cases much sooner.

By 12 o'clock on the 30th there had been fourteen cases reported, and after carefully checking up on the water, milk and food supplies, it was found that ten of the fourteen cases had taken milk from one dairy farm. At 3 o'clock in the afternoon, with Dr. George H. Coombs, of the State Department of Health, the suspected farm was visited and Widals and stools were taken from all the people on the farm. All of these people had lived and worked on this farm for many years, with the exception of a young colored man who came to work there on June 13, just eleven days before the first case was reported. This young man was, of course, suspected at once; the milk supply was stopped; the premises carefully inspected, and the well water analyzed. The Widal from the colored man gave a partial reaction, but the first stool was negative. Five more stools from him were examined, and live typhoid bacilli were isolated from one, taken after the administration of two compound cathartic pills.

This young man served in the army during the war and was given typhoid prophylaxis, but he gave no history of ever having had typhoid fever and according to his statements his reaction from the anti-typhoid inoculation was very strong.

There have been altogether forty-five cases reported during the epidemic, with a loss of four lives. The last cases were reported July 10, and all of them had had positive Widals. Our observations indicate that the colored man infected the milk on one day, and perhaps two, but no more than that. Of the forty-five cases reported it has been definitely established that forty-four of them had drunk the milk from this one farm. Not all of them took milk regularly from this farm. Three or four families had run short of their regular supply and bought some from this man's cart; another family purchased from a store that bought only four quarts of the milk on one day; one person drank a glass of the milk while visiting a friend; another person had a milk shake made from this milk. One man on his way to work bought a pint of the milk and drank it at once. This was the only time he had used the milk, but it cost him his life.

Only one case was not traced. This was a young man who had been traveling in several parts of the state, and his case is considered incidental, in no way connected with the epidemic.

The young colored man has been isolated; his discharges disinfected, and he has been made as happy as possible under the circumstances by being furnished with plenty of food by the Board of Health, and clothing by the American Red Cross. For treatment he has been given ten grains of salol a day, but this of course is only temporary treatment. Taking his gall bladder out has been thought of, but there is the question of what will be gained, if anything, by such an operation. The writer has carefully considered the use of salvarsan on this young man and has, in fact, written to some of the authorities on the use of salvarsan, asking for an opinion as to whether this drug would be strong enough to kill the typhoid bacilli in the human body.

Any suggestions from the readers of this article regarding treatment for this young man would be gratefully received.

CHESTER S. KINGSLEY,
City Sanitarian, Bath, Maine.

BOOKS AND REPORTS REVIEWED

THE LATEST BOOK ON CANCER*

A BOOK which bears all the outward appearance of a best seller has been published by E. P. Dutton & Co., from the pen of J. Ellis Barker, with an introduction by Sir W. Arbuthnot Lane of London, with the title *Cancer, How It Is Caused; How It Can Be Prevented.*

This latest contribution to the discussion of cancer is warmly commended by Sir W. Arbuthnot Lane as "a truly scientific work, a work which is unique of its kind, of which any scientist may be proud," an endorsement which may, or may not, be partly explained two pages later by the naïve statement that Mr. Barker has largely drawn upon Sir Arbuthnot Lane's own writings in the preparation of his book, and has submitted the manuscript to him before publishing it. A book whose object is to throw light on the causation and prevention of cancer, and whose sale is being promoted by means of the most thoroughly up-to-date, enterprising business methods of a reputable publishing house, deserves more than passing notice.

It need scarcely be said to the readers of this JOURNAL that the subject of this volume is one of the greatest problems the world has ever known; that many of the foremost minds in medical history have grappled with it without effect; and that to-day many men and women of a high order of intelligence, and a sound training in the medical sciences, are working patiently over it in laboratories, hospitals, and autopsy rooms.

To those who are most learned in the phenomena of cancer, the cause of the disease is a matter of surmise. To control cancer means, to most medical men, to detect it in its early stages, and to remove it by surgery, or destroy it by radium or X-rays before it has extended too far to permit a cure being made. It has been thought that something could be done in the way of prevention by correcting specific irritations which sometimes lead to cancer. No one of recognized standing has come forward to say that he knew the cause, or how the disease could be suppressed. It is of interest, therefore, to inquire into the qualifications and personality of the person who now comes forward, and, in unmeasured terms, undertakes to instruct the world as to how cancer is caused, and how it can be prevented.

Mr. Barker's qualifications are partly set forth by the publishers as those not of a medical man, but one who for many years has been a trained expert in marshaling masses of facts, and statistics, and deducing their meaning. The kinds of facts with which he has dealt can be surmised from the 1924 edition of *Who's Who*, which says that he has devoted his literary career since 1900 to warning England of the danger of a war with Germany, and from the titles of some of his previous publications. They include: British Socialism; The Problems of Motherland and Empire; Economic Statesmanship; The Great Industrial and Financial Problems Arising Through the War; One Hundred and One Points for Free Trade, and Two Hundred Points for Tariff Revision.

Mr. Barker describes himself as fifty-four years old, not athletic, but accustomed to walk twenty or twenty-five miles every week end, and feel fresh at the end of it. He says he has a clear, rosy skin and red cheeks. If he gets soaked to the skin, and afterward exposed to icy drafts in an open car or tram, he merely takes a hot bath, and there are no ill consequences. He gets up early, and takes a cold bath, winter and summer. After a few plunges in and out of the water, he rubs himself with some extremely hard linen towels until the skin is pink. Then he quickly gets into his clothes, and sets off for a four-mile walk without an overcoat. Upon his return, he makes his breakfast of coffee and milk, coarse whole-meal bread and butter, an egg, some cheese, and some raw fruit, or salad. These facts are taken almost verbatim from the author's book, as is the remark that "a natural life and a natural food can rejuvenate thousands of his readers."

It is not difficult, after reading the book, to picture the author plunging in and out of his icy bath, rubbing himself pink, and walking four miles, on an empty stomach, nor to suppose that he may then be prepared to eat a

*Cancer, How It Is Caused; How It Can Be Prevented, by J. Ellis Barker, with introduction by Sir W. Arbuthnot Lane. New York: E. P. Dutton & Company. 462 pp. $3.00 net.

breakfast consisting of cheese, or salad, or almost anything; but it is difficult to see why he should consider this a natural course of life for other people, or to suppose that, if made generally compulsory, it would not kill about as many people as does cancer. He does not explain how the millions of men and women who earn their living by long hours of toil are going to do these things.

The author paints himself as a deplorable figure before he corrected his ways. He was habitually constipated, and spent a small fortune on doctors and chemists. He says "the perpetual overloading of the colon led, presumably, to the formation of kinks; hence my constipation became more and more serious. I had to take strong and ever stronger remedies, and for years I dosed myself with irritant, poisonous drugs." For relief, feeling weak, he consumed large quantities of poisonously strong tea and coffee, and, in addition to purgatives and digestive medicines, took powerful tonics, among them large amounts of quinine, pure strychnine on doctors' orders, and various patent medicines. He discovered that hot things were more digestible than cold or warm ones, and says "so I began to take my food boiling hot." After this he began to suffer "agonies of pain, and had sleepless nights." His eyes and teeth became noticeably weaker. Nerves and brain gave way. Occasionally he fainted. This might be thought to be a climax, but a worse fate was in store for him. He became unable to write. He was, he says, about to have cancer. He does not, however, explain where the cancer was to be, nor on whose authority he was going to have it.

At this point, when it was clear that he was proceeding rapidly toward cancer, and, he says, truly deserved to have cancer, with his lacerated bowels, and his stomach corroded with very hot food and hydrochloric acid taken daily for years, he resolved to take a rest cure. So he was laid out flat, which seemed to take the kinks out of his bowels, and was put upon a suitable diet. Presently he was well. He gained thirty pounds. He was the person whose roseate appearance has been here described, and whose astounding energy has produced the latest book on cancer.

The author is positive that cancer is due to what he calls "chronic poisoning and vitamine starvation." He confesses some hesitancy in saying which is the principal element—"whether it is due to chronic poisoning aggravated by vitamine starvation, or by vitamine starvation aggravated by chronic poisoning." But he is sure that approximately 90 per cent of all cases can be directly traced to the absorption of certain poisons received from without, or within, acting over a long number of years, and thinks that if 90 per cent are due to this cause, it is safe to conclude that the remaining 10 per cent may be due to it, also.

It may be well to explain here that the author uses the word "cancer" to apply only to that group of neoplastic diseases not specifically included under the term sarcoma. He concerns himself solely with carcinoma, which would appear a sufficiently large undertaking. He estimates that in England the number of people now living who will die of cancer, if not saved from that disease, lies between six and eight millions, and in the United States between fifteen and twenty millions. Consequently, he says he has "rushed out the book with the utmost speed."

Over and over again in the course of his 462 pages, the author affirms his confidence in his theory, that cancer is due to chronic poisoning and vitamine starvation. He mentions many of the poisons, but none of the vitamines. He argues warmly against food preservatives, too much cooking, gasoline fumes, and his attitude is that of witness, advocate, and judge. By the reforms which he indicates, he says the cancer death rate might not only be greatly reduced, but in course of time cancer might be almost eliminated.

The titles of some of the chapters indicate the attitude of the author toward his subject, but do not give a good idea of the substance of his text. Titles include: The Horror and the Mystery of Cancer; Why the Cancer Problem Is the Despair of the Scientists; Is Cancer Caused by an Injury, or Age, or by Irritation?; Cancer Is Due to Chronic Poisoning and to Vitamine Starvation; The Defects of Modern Feeding and Their Relation to Cancer; Wrong Habits of Modern Life and Their Influence upon Cancer; The Test of the Cancer Theory Stated in This Book—if the Cancer Theory Is Right, it Should Solve All the Mysteries of that Disease; and How People Who Are in an Advanced Pre-Cancerous Condition May Be Saved.

The modern scientific theories as to the causation of cancer are not wholly shared by the author. For example, he says that irrita-

tion does not lead to cancer unless that irritation is poisonous. He regards burns of various kinds equivalent to poisoning. The idea that cancer is infectious is founded rather on instinctive fear than on fact. Cancerphobia is declared to be widespread, and is most acute among the doctors, for "naturally they do not wish to take any chances."

Although positive of his theory that cancer is produced by chronic poisoning and vitamine starvation, and nothing else, the author is cautious to leave a back door open for escape if a parasitic cause for cancer is ever discovered. He says that if there should be a cancer-creating organism, it cannot be the principal cause of the disease; otherwise, it would spread from civilized people to primitive tribes. There may be some particular microörganism connected with cancer, he thinks, but, if this is so the microörganism may be caused by the cancer rather than the cancer caused by the microörganism. With reference to the results of scientific research, the author says "those who believe in ghosts, see ghosts, and scientists specializing in microorganism are apt to discover noxious microorganisms which are not there."

"Chronic poisoning and vitamine starvation" is a phrase used by the author to include the results of a great many of the known evils of civilized life, whose existence and generally harmful character have been known for a long time. There is nothing new about them, nor about their discovery. What is new is the attempt to attach so much importance to them as a cause of cancer. It would have been as logical to have said they led to any one of a number of other diseases.

In spite of the fact that the book is loaded, not to say overloaded, with long quotations, most of which are arguments against what Sir W. Arbuthnot Lane has called intestinal stasis, but which is universally known by English-speaking people as constipation, against food preservatives, against the over-refinement of food preparations, against gasoline fumes, the use of tar on roads, the habit of consuming too exclusively a diet of cooked food, against a sedentary life, and against many other things which seem to be inseparable from modern civilization—in spite of all this, the author cannot be said to have advanced the subject of cancer control in any way.—GEORGE A. SOPER, PH.D., *Managing Director of the American Society for the Control of Cancer.*

War Against Tropical Disease.—*Being Seven Sanitary Sermons Addressed to All Interested in Tropical Hygiene and Administration. By Andrew Balfour, C.B., C.M.G., M.D., B.Sc. (Public Health), F.R.C.P. (Edin.), D.P.H. (Camb.). London: Baillière, Tindall and Cox,* 1920.

This series of articles, which the author calls "Seven Sanitary Sermons," contains a wealth of information about tropical diseases and their control. The author shows not only a thorough familiarity with the tropical diseases of the Old World where he has done much of his work, but also gives an account of his trip through many parts of the New World, during which he visited various interesting parts of this continent, and studied not only the customs of the people, but also the diseases to which they are peculiarly subject.

As a matter of course, it treats extensively of insect-borne diseases, and very interesting chapters are given on medical entomology. There is much information also concerning certain plants, and an entire lecture is given on the palm tree and its economic and sanitary value to mankind. In the tropics the palm tree is, as he says, a veritable "Tree of Life." The vast importance of the tropics to the other parts of the world from an economic standpoint, and how we have come into close touch with the diseases of the tropics through the growth of rapid transit make a study of this sort especially valuable and interesting. The tremendous advance which has been made in the tropical regions of the world is pictured, and the necessary qualifications of men who desire to give their lives to this work are pointed out.

The book is published by the Wellcome Bureau of Scientific Research, and written by the Director-in-Chief of this Bureau.

The chief defect of the book is the absence of an index—a need which is only partially supplied by a quite full table of contents, which is, however, not alphabetically arranged. The book is profusely illustrated with excellent cuts and some colored plates, and written in a most attractive style which holds the attention of the reader. It is not new, but does not seem to have had much circulation in the United States. It can be heartily recommended to those who are interested in this phase of sanitation, and to all for whom the tropics have a fascination.

The New Decalogue of Science.—*By Albert Edward Wiggam. Indianapolis: The Bobbs-Merrill Co.*, 1924. 303 pp. Price, $3.00.

Readers of *The Century* will recall the trenchant and vigorous article by this brilliant writer which bears the above title. The book is in reality an expansion of his earlier essay on this theme. The text is directed to the Statesman, Executive Mansion, and is couched in the phraseology of sacred writ, but the voice is that of the laboratory and the decalogue is based on the conclusions of biology, psychology and anthropology. The author's inspiration comes from Columbia University, and his guiding star is Drosophila. Biochemistry, paleontology, and history are scarcely in his horizon and the Lamarckians are but feeble folk to him. Heredity is the master key to all human problems.

The work is a masterly and forceful presentation of the bearing of recent discoveries in heredity on the problems of racial qualities, their nature, origin, transmission and preservation. The conclusions are applied directly to the current day questions of racial admixtures, immigration, leadership, industrial efficiency, food supply and population, and preferential reproduction. It is a work to be read, reread and deeply pondered over by every physician, teacher, clergyman, statesman, and all who may advise or influence others in these matters. The author attempts to present the relation of environmental factors fairly, but his readers will certainly receive the impression that this influence is trivial, and unduly so. His conclusion that medicine, sanitation, and hygiene will weaken the human race overlooks the fact that these very forces differentially favor the persistence of the more intelligent elements in the human stocks and also add immensely to the social accretions by prolonging the years of efficiency. His perspective and emphasis appear somewhat distorted in his sweeping denial that morals, education, art and religion will not improve the human race. Obedience to the new decalogue of science which demands that men be efficiently good can best be secured in the social atmosphere pervaded by the influence of true environmental factors. Their coöperation in the motivation of men is quite as essential as the new knowledge; else its promulgation may be in vain. The only alternative would seem to be an omniscient tyrant.

General Cytology.—*A Textbook of Cellular Structure and Function, for Students of Biology and Medicine. By Robert Chambers, E. G. Conklin, E. V. Cowdry, M. H. Jacobs, E. E. Just, M. R. Lewis, W. H. Lewis, F. R. Lillie, R. S. Lillie, C. E. McClung, A. P. Matthews, T. H. Morgan, E. B. Wilson. Edited by E. V. Cowdry. Chicago: The University of Chicago Press.* x+754 pp., illustrated with plates and figures in text. Price, $7.50.

This work on cytology is unique in two important particulars; it is a coöperative enterprise of thirteen authors, and it is an effort to synthesize our enlarging knowledge by a rapprochement of structure and function. To this end the biochemist, the physiologist, the cytologist, the experimentalist, and the geneticist have collaborated. It is to be regretted that the richly instructive fields of the bacteriologist, protozoölogist and botanist are omitted in the synthesis. Since cytology is the basis of all understanding of vital activities and is peculiarly fundamental in the analysis of the mechanism of heredity, this extensive work by eminent authorities in their respective fields will be widely welcomed. It is justly the product of the Woods Hole Biological Laboratory, the most potent agency in the shaping of biology in America. The historical introduction is by the veteran cytologist, Dr. E. B. Wilson. The chemistry of cells is treated by Dr. A. P. Matthews, who bases his discussion on the newer concepts of the electrical organization of matter, and significantly remarks at the close of a most valuable contribution: "Chemistry as yet gives no support to the gene theory of inheritance, but so far as it touches the problem seems to pronounce against it." Dr. M. H. Jacobs treats of permeability of cells and Dr. R. S. Lillie of their reactions to stimuli, while Dr. Robert Chambers applies the microdissection and microinjection apparatus to an analysis of the physical structure of the living substance. The mitochondria and other cytoplasmic contents are described by Dr. E. V. Cowdry, and the growth of cells in tissue cultures apart from the bodies in which they have originated is discussed by Drs. W. H. and M. R. Lewis. The chemical and morphological aspects of fertilization determined by the methods of experimental analysis are treated by Drs. F. R. Lillie and E. E. Just. The processes of cellular differentiation by means of which the seemingly simple substance of

the one-celled egg is transformed into the highly differentiated substance of the cells of the various organs of the body is the theme of the chapter by Dr. E. G. Conklin. The last two chapters are of greatest interest to readers of the JOURNAL, for they give in succinct form the cytological and the genetic bases upon which modern interpretations of heredity rest. Dr. C. E. McClung explains and illustrates the chromosome theory and Dr. T. H. Morgan correlates Mendelian heredity or the orderly transmission of ancestral characters, including sex, with the discoveries of the cytologist. These clear statements in brief compass will be of greatest value to all who seek an authoritative account of this most significant field of heredity which underlies and conditions so much of effort in health and sanitation as well as in other forms of social amelioration.

Handbuch der Tropenkrankheiten.—*Herausgegeben von Professor Dr. Carl Mense, Dritte Auflage. Erster Band. Leipzig: Verlag von Johann Ambrosius Barth,* 1924. xviii+713 pp., 7 black and white and 5 colored plates, 341 figures in text.

The third edition of this justly famous encyclopedic work on tropical diseases is inaugurated by this handsomely and abundantly illustrated volume, the first of five to be issued, according to the prospectus, in the course of two years. This volume contains two sections only of the projected work. The first is Dr. A. Eysell's monograph on the disease-carrying and disease-producing arthropods, and the second is Dr. V. Schilling's comprehensive account of the practical study of the blood in tropical diseases. Dr. Eysell's treatise deals with the ticks, lice, bedbugs and kissing bugs, sand flies, buffalo and other gnats, horse, stable, and house flies, and the tsetse fly, as carriers of disease-producing organisms. Over one-fourth of the space is devoted to the mosquitoes in relation to malaria and yellow fever. Insects which are poisonous, such as the spiders, scorpions, bees, and wasps, and others which attack tissues, such as mites, itch insect, certain beetles, and the flesh flies, are reviewed at length. Although designated as a treatise on tropical diseases, the work in reality includes all arthropods inimical to man in all latitudes. The insect pests of temperate zones are therefore fully represented.

The author includes in his treatment full references to and critical discussions of preventive measures and public health and administrative procedures employed in insect destruction and extermination. Thus, in treating of lice, the protective measures in personal hygiene, as well as the conditions to be met in delousing operations, are set forth in full detail. Practical measures successfully employed in various parts of the world in the suppression and elimination of mosquitoes by drainage, larval-feeding fishes, insect-feeding plants (Utricularia), the use of crude oil, saprol, pyrethrum, and poisonous anilin products (larvacide, malachite green) are fully set forth. The subject of fly prevention is on the other hand inadequately presented. Much of the important American work is apparently unknown. Hewitt's excellent book on the house fly is not cited. The work of Herms and others appearing in the bulletins of our many agricultural experiment stations is not referred to, and the use of cyanide for the destruction of fly larvæ in the receptacles for night soil in the Orient seems to have been unknown. As a rule the citations of literature are abundant and the bibliographies very extensive; for example, the one on mosquitoes fills 63 pages and contains over 1,800 titles, though it does omit the Memoirs of Sir Ronald Ross and Life of Walter Reed.

Dr. Schilling's treatise deals with the technique of blood staining, vital staining, and the blood count with reference to the morphology of its constituent elements in health and disease, especially in the tropics. The blood picture in the true blood diseases, in the protozoan infections such as the several types of malaria, sleeping sickness, kala azar, oriental boil, amoebiasis, relapsing fever, bacterial infections, helminthiasis, and in the diseases of metabolic origin such as beriberi, sprue, and pellagra, is described and is also often figured in the fine series of colored plates.

The work is a very useful encyclopedia of the principles and details of scientific information on the diseases of the tropics.

Human Protozoology.—*By Robert W. Hegner and William H. Taliaferro. New York: The Macmillan Company,* 1924. xx+597, 197 figures in text.

This work is based on the lectures given in the course in protozoölogy in the School of Hygiene and Public Health of Johns Hopkins

University. It is compiled, therefore, with the needs and interests of public health officers and of physicians in mind. It has, however, a fundamental zoölogical basis, and will therefore be useful as an adjunct in courses designed primarily for the needs of zoölogical or premedical students. Its illustrative material is drawn largely from the parasitic protozoans associated with disease in man and other vertebrates. We find, therefore, emphasis laid upon the protozoan infections of the digestive tract, the amoebas, flagellates, coccidians, and balantidiums, upon the trypanosomes of sleeping sickness, upon the flagellates of the leishmaniases, and upon malaria and other haematozoan parasites. In the main, the distribution of space and emphasis is characterized by careful selection and recognition of relative significance of the organisms and the diseases they cause. Perhaps the space devoted to trypanosomes and trypanosomiases and to ciliates is unduly great, as compared with that given to amoebiasis and to malaria. In the more purely biological fields there is an absence of a clear presentation of the life cycle of the protozoa as compared with that of the protophyta and the metazoa and the metaphyta. The piroplasmidæ are left in the sporozoa instead of being transferred to the mastigophora where their affinities are more evident. *Piroplasma* is used in lieu of *Babesia*, the nomenclaturally correct name for the organism of Texas fever.

The statement that by far the majority of persons infected with *Endomoeba histolytica* "never show any clinical symptoms of disease, but simply live along as healthy carriers of the organism," does not seem to be justified either by the known facts as to the consequences of the infection, and still less by any authentic clinical study of such so-called carriers. The available medical data as to organ infection and tissue penetration by this parasite of the intestinal wall are omitted or inadequately presented.

The work will be particularly useful since it is the only summary in the English language in the field of medical protozoölogy which incorporates the considerable extensions of our knowledge in that field which has resulted from the investigations carried on during and since the war. This is especially true in the subject of amoebiasis, leishmaniases, and malaria. The author's own investigations on the culture of intestinal flagellates and on the influence of diet upon the protozoan fauna of the intestina of amphibians are important and suggestive contributions. It is to be hoped that a new edition can incorporate more data from the fields of serology and immunology, and that methods of prevention and control may also be more fully elaborated in the interests of public health and preventive medicine.

As a Doctor Sees It.—*B. Liber, M.D., Dr.P.H. New York: The Critic and Guide Co.*, 1924. Pp. 189. Price, $2.50.

Dr. Stephen Smith in "The City That Was" described the unspeakably unsanitary conditions of New York City during the middle of the last century. Reading of these conditions now it seems impossible that they ever have existed. Sewage that ran in the open gutters has been diverted to a sanitary sewerage system; smallpox and typhus fever then rampant have been controlled or eradicated. To-day we accept our sanitary surroundings as a matter of course and it takes a book like Dr. Liber's to remind us that though the tangible evidences of unhealthy living have largely disappeared through modern sanitation, there are other conditions in our more up to date civilization that are similarly depleting human happiness and sapping the life of the community. Ignorance and superstition, war, modern industry and commerce are the agents of the endemic misery in Dr. Liber's community.

People of a doctor's practice, citizens of America, are the characters in his collection of one hundred and seventy-four items. They are not stories but the sketches an artist makes in assembling material for a great picture. Individually they depict a poignant and momentary pose or attitude; collectively they form a mosaic which is a vivid picture of human suffering and death that our high powered modern public health campaign has failed to dim. Environmental sanitation has controlled material things with beneficent results, personal hygiene has now taken the field to prove its merit, the sanitarian still has before him the untilled field of social environment.

PUBLIC HEALTH ADMINISTRATION

LOUIS I. HARRIS, M.D.

Procedures in Cases of Diphtheria.—Pinpricks and other forms of stimulation have thus far failed to evoke a single evidence of interest on the part of readers in what has been contributed to this column during the past several months. We shall therefore try a new tack.

Every health officer is so sure that his own method of administration in connection with communicable diseases is best, that we may perhaps be able to arouse some measure of discussion, criticism, or exchange of views, by publishing the mode of procedure of the Department of Health of the City of New York in dealing with the major communicable diseases. Obviously, the methods that obtain in a large city must be radically different from those which are suited to a rural community. The large city, as a rule, has the advantage of an elaborate and well-knit organization, of hospital facilities, and of other agencies for supervising cases and enforcing law. On the other hand, the herding together of innumerable families brings with it many complexities and disadvantages that are not experienced by the rural health officer. The basic principles of public health administration involved should, however, have much that is of common interest and, therefore, be of general service.

In what follows the problems have been stated in the form of questions which were originally designed to serve the needs of the field workers of the Bureau of Preventable Diseases of the Health Department of the City of New York. The answers formulated by the writer constitute a statement of the official attitude of the Department of Health of this city in dealing with the problems presented. Slight modifications have been made in the designations which we employ locally, so that the general reader who is not acquainted with the particular plan of organization of the Health Department of the City of New York may not be confused.

Procedures in Cases of Diphtheria

Q. What is the incubation period?

A. Up to seven days.

Q. What is the minimum quarantine period?

A. Twelve days after the onset and until two successive negative cultures, taken at least twenty-four hours apart are obtained at the end of the twelve-day period.

Q. What is the maximum quarantine period?

A. Until such time as two successive negative cultures have been obtained, no matter how many days beyond the minimum twelve-day period this may extend.

Q. If a case of diphtheria continues to have positive cultures for four weeks after the onset, what would you do?

A. The culture should be submitted to the laboratory with a special request that an examination be made to discover whether the germs are still virulent (Virulence Test).

Q. On what do we base the diagnosis of diphtheria?

A. Upon two kinds of evidence—clinical and bacteriological.

Q. Briefly describe them.

A. *Clinical:* A case of diphtheria almost always shows a sore throat, usually with a false membrane on some part of the throat, enlargement of the lymph nodes of the neck and signs of toxemia. Sometimes the membrane is confined to the larynx, giving a croup that steadily increases in severity and is a very frequent cause of death from diphtheria.

Bacteriological: A culture of such a throat or nose proving positive for diphtheria bacilli, establishes the diagnosis for all administrative purposes. However, due to various circumstances the culture may be negative, and, if so, it does not of itself disprove the diagnosis.

Q. Under what conditions may children and teachers return to school before the termination of the case?

A. All exposed persons, whether they move to a new address or remain home, may return to school seven days after the last exposure, provided that they show a negative culture at the end of such seven-day period.

Q. What is the first duty of the visiting nurse if she finds that there are other children in the family?

A. She must make it clear that immunization with antitoxin is a life-saving measure, and she should persuade the parents to ask the family physician to immunize exposed children *without delay*. The central office should be notified at once by telephone of the presence of exposed children, so that the chief officer may urge the family physician to immunize susceptibles.

Q. Should cultures of the well children be taken when the attending physician has refused consent to have the nurse take cultures?

A. No, but it is proper to instruct the family that such cultures from the nose and throat of exposed children are of the greatest importance, and that they should request the private physician to take such cultures; the central

office should be notified at once so that they may communicate with the private physician and urge him to take cultures; an official request made by the chief officer to the private physicians to immunize susceptibles and to take trial cultures places the legal responsibility for neglect to do so squarely upon the private physician.

Q. Where the consent of the family and of the private physician for immunization of exposed persons has been obtained, what is the procedure to follow?

A. The central office should be notified by the field worker by telephone, to send a diagnostician for the purpose of immunizing exposed persons.

Q. The doctor has prescribed medicines but has not injected diphtheria antitoxin; should anything be said to the parents by our representative?

A. No. But no time should be lost in reporting the facts by telephone to the central office so that the chief officer may take appropriate action.

Q. The doctor has told the mother that the well children need not remain in the house. Should this be permitted?

A. Yes, provided that they do not mingle with other children nor visit homes, schools of any kind, or other public places where they may come in close contact with other children.

Q. How much time should elapse after the case recovers before certificates are issued to the other children to return to school, when the parents do not permit trial cultures to be taken?

A. A certificate authorizing return to school should not be issued. The children should be kept quarantined for twelve days after the termination of the case, as presumptive diphtheria cases or diphtheria carriers; then when they return to school the school nurse should be advised not to admit the exposed persons, until she has been allowed to take trial cultures.

Q. Should the cultures to terminate a case be taken without consulting the attending physician?

A. Never.

Q. Should the throats of the other children be examined in a family under the care of a private physician to see if they have signs of diphtheria?

A. Never. If it seems advisable to do so, the central office should be notified and the appropriate action left to the chief officer.

Q. Should the child's temperature be taken by the nurse?

A. No.

Q. What action should be taken if conditions in the home make it practically impossible to maintain proper isolation and quarantine?

A. The parents should be urged to allow the child to be taken to a hospital. If persuasion fails, forcible removal should be recommended *at once*.

Q. Under what circumstances may parents be informed by field workers of the results of the laboratory examination of cultures?

A. Only when our nurses or inspectors have been authorized to take such cultures. When a private physician takes cultures the family should be referred to him for information.

Q. What is the first procedure in forcing a case into the hospital?

A. The conditions that justify forcible removal must be specifically reported by telephone and later in writing to the central office, with a recommendation for forcible removal.

Q. If a child living in rooms connecting with a store has signs of clinical diphtheria, but a negative culture, may forcible removal to a hospital and other quarantine procedures be enforced?

A. Yes. A clinical diagnosis of diphtheria submitted by a private physician or established by one of our diagnosticians is sufficient warrant to take action exactly as if the case were reported by a positive culture. Before removal is actually executed, a diagnostician should confirm the diagnosis in every case where forcible removal is to be made.

Q. How many warnings have to be given before forcible removal can be made?

A. The custom has been to give two warnings, but one warning may be sufficient. In cases where isolation and quarantine are impossible or instructions are wilfully ignored, forcible removal may be recommended without giving any formal warning to remedy conditions; a careful statement of the reasons for such drastic action must accompany the recommendation.

Q. Where intubation is required, what action should be taken?

A. Unless the family physician is available and ready and able to perform intubation, the facts should be immediately telephoned to the central office, so that an ambulance may be promptly sent. The private physician must be notified as soon as possible.

Q. How must a culture be taken?

A. The patient should be placed in a good light, and if a child, it should be properly held. In cases where it is possible to get a good view of the throat, depress the tongue and rub the cotton swab gently but freely against any visible exudate, revolving the applicator between the fingers, so as to bring all portions of the swab in contact with the membrane or exudate. In taking cultures from the tonsils, an effort should be made to insert the swab gently into the openings or crypts that may show in the tonsil. In those cases in which the exudate is apparently confined to the larynx, pass the swab as far into the throat as possible, avoiding the tongue, and rub it gently as described above against the mucous membrane of the pharynx and tonsils. To take a nasal culture the swab should be gently inserted into each nasal cavity as far back as possible. Withdraw the cotton plug that seals the culture tube, holding it so that the portion withdrawn from the tube does not come in contact with the fingers or with any other substance. Insert the swab and rub it gently but thoroughly back and forth over the entire surface of the blood serum. At least half a

minute should be given to this operation, the applicator being revolved so as to bring all portions of the swab in contact with the surface of the blood serum. *Do not allow the swab to touch anything except the throat of the patient and the surface of the serum.* Do not push the swab into the serum nor break the surface in any way. Do not use tubes in which the serum is contaminated, liquefied or dried up. Replace the swab in its own tube, plug both tubes, mark the culture tube with the name of the patient for identification on the accompanying blank, and return both tubes and blank promptly to the nearest collecting station. Unsatisfactory cultures, exhibiting insufficient growth or contamination by foreign bacteria, usually result from failure to follow carefully the above directions. Be sure to wash the hands thoroughly with soap and water after taking a culture. The hands should be well dried and then washed with alcohol, if available.

Q. If two successive negative cultures have been obtained subsequent to the twelve-day minimum quarantine period, but upon examination of the patient at the final visit, a slight discharge from an ear or from the nose or from a wound is noticed, what should be done?

A. Continue quarantine until the discharge ceases, and if the discharge does not cease four weeks after the onset of the disease, submit a smear from such discharge for a virulence test and make a special report.

Q. If you have learned that twelve days after the onset, a single negative culture was obtained, and that the private physician told the parents the case was very mild and the weather so good that they might take the patient out for a ride, what action would you take?

A. The parents or guardians should be informed that they have violated quarantine; instructions and warning should be issued against a repetition and the facts reported at once to the central office.

Q. If a doctor wishes to retract the diagnosis of diphtheria where the culture is negative, what is the proper procedure?

A. The physician must make application to the central office. A diagnostician must see the case, and unless absolutely certain from the history and the appearance of the nose and throat that the case is negative, he must take a culture. If both the culture and the clinical aspect of the nose and throat are negative, the case will be terminated.

Q. If a positive culture is obtained from the nose or throat of an apparently well child, what action is to be taken?

A. The child is classified as a "diphtheria carrier" and is treated like a case, except that we do not wait for a period of twelve days to elapse, but may begin to take terminating cultures at once; on obtaining two successive negative cultures from the nose and throat, we release the child from quarantine at once. The case is to be listed on the printed daily contagious list as a "diphtheria carrier" for the information of the school authorities and others.

The Relationship of Varicella to Herpes Zoster.—In a recent report emanating from the Australian Health Ministry, C. R. Wiburd, a quarantine officer, presents a very interesting review of medical literature, tending to show that a very definite relationship exists between Varicella and Herpes Zoster. Attention was first drawn to the possibility of an association between these two diseases by Von Bokay of Budapesth in 1892.

Several authorities have reported numbers of cases in which Herpes Zoster occurring in one person was followed, in eight to twenty-one days, by Varicella in one or more persons who were in contact with such case. There are other cases in which Herpes Zoster has been followed, in the same individual, within two to five days, by a generalized eruption indistinguishable from Varicella. LeFeuvre contends that the eruption, sometimes spoken of as Herpes Zoster Generalisatus, is in no respect different from Varicella. Finally, there are cases in which Varicella in one individual is followed by Herpes Zoster in others. While the question of relationship between these two diseases is still an open one, much evidence has been presented that makes it appear that the sequence of these two diseases is more than a coincidence. It may be, as Heim of Budapesth has suggested, that some cases of Herpes Zoster are etiologically and clinically unlike each other; some of them really being cases of Varicella where for some obscure reason the eruption is localized.

Closely related to this subject is the recent publication of the opinion of Levaditi—that there is some relationship between epidemics of encephalitis lethargica and herpes, and herpetic angina. He is of the opinion that before an outbreak of epidemic encephalitis lethargica, the virus responsible for this disease has already existed in attenuated form in the saliva, in persons who have shown some such common manifestation as a simple herpes. Following a progressive or suddenly increased pathogenic power, the germ which in the beginning showed a tendency to attack epithelial tissue, assuming the form of herpes, undergoes a marked change and acquires the power of attacking nervous tissue.

If this opinion is substantiated, it will give a new importance to our administrative efforts in preventing the transmission of various diseases through salivary discharges.

PUBLIC HEALTH LABORATORY NOTES

C. C. YOUNG

New Hone for Microtome Knives.—Inability to purchase any longer yellow Belgian hones having a 3 by 12 inch grinding surface caused a search for a duplicate made in this country. The Carborundum Company of Niagara Falls made for the author two hones of "sixty minute power," two grades finer than any hitherto used in hones made by them. These hones give very satisfactory results, prolonging enormously the life of such high grade naturally occurring hones as can be obtained, in that their use is limited to a final touch before stropping. The necessity for control throughout with a high power compound microscope is pointed out.—Weller, *Jr. Lab. & Clin. Med.*, 9:561 (May), 1924. M. S. M.

Agglutination of Pfeiffer Bacillus.—The serum of influenza patients agglutinates Pfeiffer bacilli to a greater degree and in a larger number of cases than does the serum of healthy persons. The same is true, however, of the serum of measles patients; so the presence of agglutinins for the Pfeiffer bacilli in influenza serum cannot be taken as evidence of any causal relation between this organism and influenza. There is no evidence that the observed increase in agglutinative power in measles serum is dependent in any degree on the secondary invasion by the Pfeiffer bacilli. The most plausible explanation seems to be that infections of various kinds increase the nonspecific or normal agglutinins of the blood, and that such relatively slight agglutination enhancement as is observed falls in this category and not in that of specific causal relation.—Sharp and Jordan, *J. Inf. Dis.*, 34:305 (March), 1924. M. S. M.

Antigen in Immunized Animal.—When proteins such as horse serum or crystalline egg albumen, which have been selected because they produce the phenomenon of immunity, are introduced into a normal animal, they diffuse widely in the tissue, enter the blood stream, and are disseminated throughout the body. The same substances introduced into an immune animal are fixed at the site of entry and are not found in the blood. When protein is injected into the skin of an immune animal acute inflammation (Arthus phenomenon) occurs at the site of injection and brings about destruction of the foreign substance.—Opie, *J. Exp. Med.*, 39:659 (May), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus I.—Anaerobically grown pneumococci rapidly form peroxide upon exposure to molecular oxygen. The peroxide-forming activity of pneumococci varies with different strains, and with the age of the cell. Peroxide production by pneumococci can proceed under conditions of reaction and temperature that do not permit active growth and multiplication of the cell.—Avery and Neill, *J. Exp. Med.*, 39:347 (March), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus II.—Sterile broth or phosphate extracts of pneumococci form peroxide from the air at 20°, and almost equally well at 2°; it is also produced by extracts having a pH from 5.0 to 9.0, most actively between 6.0 and 9.0. It is diminished by heating at 55°, and lost by heating at 65°. Cells which have been thoroughly washed prior to extraction in salt or phosphate solutions have no peroxide-forming activity, but may be activated by adding cell washings, yeast extract, or muscle infusion.—Avery and Neill, *J. Exp. Med.*, 39:357 (March), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus III.—Sterile broth extracts of unwashed pneumococci, entirely free from living or intact cells, actively reduce methylene blue. Sterile extracts prepared by extracting washed pneumococci in phosphate solution are unable by themselves to reduce methylene blue. Upon the addition of meat infusion or yeast extract, these washed cell-extracts actively reduce methylene blue. The system or systems in pneumococcus extracts responsible for methylene blue reduction are destroyed by exposure to temperatures practically identical with those which have been previously found to destroy the peroxide-forming activity of the same ex-

tracts. It is suggested that peroxide formation and methylene blue reduction by pneumococcus extracts are functions of the same or closely related systems, the particular reaction induced depending upon whether molecular oxygen or methylene blue serves as hydrogen acceptor or oxygen donator.—Avery and Neill, *J. Exp. Med.*, 39:543 (April), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus IV.—Hematoxin described by Cole as an intracellular substance present in pneumococci, labile, causing acute death in guinea pigs, and causing rapid hemolysis of red blood cells, was found by the authors to be destroyed in pneumococcus extracts exposed to the air only in those extracts capable of undergoing autoxidation. The active agent responsible for the destruction is considered as probably a peroxide formed by the union of molecular oxygen with some other easily oxidizable constituents of the extract.—Avery and Neill, *J. Exp. Med.*, 39:745 (May), 1924. M. S. M.

Oxidation and Reduction by Pneumococcus V.—Sterile broth extracts of unwashed pneumococci actively destroy hemoglobin to methemoglobin and lower degradation products; Sterile saline extracts of washed pneumococci do not by themselves form methomoglobin; extracts of this type may be completed or activated by the addition of certain complementary substances such as meat infusion and yeast extract. The hemoglobin-destroying activity of pneumococcus extract is lost by exposure to 65° for 10 minutes. The properties of an extract upon which these blood changes depend are related to other known oxidation-reduction functions of the same extract. Oxyhemoglobin is converted to methemoglobin only by cell extracts in the reduced form; completely oxidized extracts are inactive in the presence of blood. The action of hydrogen peroxide and the influence of blood catalase on these reactions are discussed. During the reaction between oxyhemoglobin and pneumococcus extract oxygen is consumed. The mechanism of methemoglobin formation by pneumococcus is interpreted as an oxidation process in which deoxygenation of oxyhemoglobin and peroxide formation occur as intermediary reactions. The active agent of the oxidation of hemoglobin is considered to be peroxide of bacterial origin.—Neill and Avery, *J. Exp. Med.*, 39:757 (May), 1924. M. S. M.

Determination of Iodine in Food, Drink, and Excreta.—The author points out that older methods for iodine determination give poor results because of difficulties encountered in the ashing of organic matter. It is impossible to prevent the loss of iodine by the addition of alkali before ashing as is done in these methods. The method he has devised for this determination provides for the burning of the organic matter in a combustion tube and the collection of the iodine that may escape in the gases by passing them through a solution of NaOH. A colorimetric determination is then made on the ash and NaOH solution. A micro-colorimeter is used for the comparison of the colors. Two methods following this principle are outlined, one on the determination of iodine in water and the other on the iodine in large amounts of foodstuffs. The only difference between the two is the size of the combustion tube and slight changes in manipulation. Iodine in amounts as small as 0.001 mg. can be detected by this method.—McClendon, *J. Biol. Chem.*, 60:289 (June), 1924. E. F. E.

Experimental Human Inoculations with Filtered Nasal Secretions from Acute Coryza.—The authors' review of the literature reveals a great divergence of results obtained from various investigations in regard to the filtrable virus theory of colds. Berkefeld filtrate of nasopharynx washings from acute coryza patients were sprayed onto the mucous membrane of 100 apparently normal persons. Of these 100 persons inoculated there was one bronchitis case, one coryza case, one influenza case, and two laryngitis cases. Ninety-five cases, or 95 per cent, showed no symptoms of respiratory infection following the inoculation. In all cases examined during the early stages of the attack, there was a marked reduction of variety of organisms in the bacterial flora with the predominance of one organism. The authors conclude that the experiments present no convincing evidence indicative of a filter passing organism as the cause of acute coryza. They believe the cases recorded as positive to be the result of factors independent of the inoculation.—Robertson and Groves, *Jr. of Inf. Dis.*, 34:400 (April), 1924. L. D. H.

Differential Tests for Colon-Aerogenes Group in Relation to Sanitary Quality of Water.—Two series of cultures were obtained, one from a polluted source, and the

other from an unpolluted source. To differentiate organisms of fecal and nonfecal origin the following tests were used: Methyl red test, Voges-Proskauer reaction, the ability to develop in a synthetic uric acid medium, and the ability to utilize citrate. Of the organisms isolated from unpolluted sources 73.3 per cent, and from polluted sources 80.4 per cent were methyl red positive. The uric acid test and the Voges-Proskauer reaction likewise failed to differentiate the organisms isolated from the two sources. However, the utilization of citrate by the organism showed a close agreement with the sanitary survey. Of the organisms isolated from polluted sources 64.5 per cent were citrate negative, while only 16.7 per cent of those organisms isolated from unpolluted sources were citrate negative.—Koser, *Jr. of Inf. Dis.*, 35:14 (July), 1924. P. C. Y.

Case of Cholelithiasis in Which Bacillus Typhosus Was Isolated from Center of Gallstone.—This history of the case led to the belief that infection of the gall bladder with B. typhosus had occurred 23 years previously, which resulted in the formation of gall stones. Certain areas of the gall bladder showed irregular proliferation of the endothelium. The indirect etiological relationship of this typhoid cholecystitis to a subsequent possible malignant growth originating in the lining of the viscus is of interest.—Perry, *J. Roy. Army Med. Corps, Lond.*, 40:295, 1923; *Ab. of Bact.*, 8:88 (March), 1924.

B. Tuberculosis in the Bile and Urine of Tuberculous Guinea Pigs.—Bile and urine were collected from tuberculous guinea pigs and injected subcutaneously into other guinea pigs. Of 24 pigs which received bile 18 developed tuberculosis; of 24 pigs which were injected with urine 12 became tuberculous.—Remlinger, *Compt. rend. Soc. de biol.*, 88:409, 1923; *Ab. of Bact.*, 8:91 (March), 1924.

An Anaerobic Agent of Gaseous Gangrene.—A strict anaerobe was isolated from several fatal cases in which the injury was followed by gangrene. The organism is Gram-positive, slightly motile, 1.2–1.5 x 6 micron in size and has rounded ends. They occur singly or in pairs, end to end. They form chains on serum media only, never in the tissues or other media. Spore formation takes place readily in all media, especially if the media is not acid. The spores are central or subterminal and deform the bacillus. Growth takes place readily in the depth of agar, with the formation of opaque white colonies. On the surface of agar large colonies develop which are never confluent. Hemolysis takes place on blood agar. Beef serum is not liquefied, horse serum only partially. In litmus milk the casein is precipitated slightly and slowly digested. Gelatin is rapidly liquefied. There is abundant growth in brain media, with blackening. In all media a very nauseating odor is produced. Acid and gas develop in glucose, levulose, maltose, and saccharose media. Lactose, arabinose, inulin and mannite are not affected. The organisms are pathogenic for the rabbit and guinea pig; four to five day old cultures in bouillon kill rabbits in 0.1 c.c. amounts given subcutaneously; guinea pigs succumb within 24 hours to 0.01 c.c. given intramuscularly. The supernatant fluid of centrifuged broth cultures is without toxic effect when injected into the circulation; rabbits withstand 2 c.c. intravenously. Filtrates are, however, very toxic when given into the tissues (0.001 c.c. being fatal for the guinea pig, killing in 24 to 36 hours). Rabbits and horses are likewise susceptible to the toxin. The toxin is not neutralized by antigangrene (anti-perfringens-V. *septique, edematiens, histolyticus*) serum, nor by the serum of Vincent, or Val-de-Grace.—Sordelli, *Compt. rend. Soc. de biol.*, 87:838, 1922; *Ab. of Bact.*, 8:95 (March), 1924.

NOTE: Each month we desire to publish in the LABORATORY NOTES two or three short articles (not exceeding 250 words) dealing with some phase of applied bacteriology, labor saving devices, modified methods, etc. Contributions should be in the hands of associate editor before the fifteenth of each month.—C. C. YOUNG.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Health Record for **May, 1924.**—The death rate for the general population of the large cities of the United States during May was lower than for April, 1924, but a little higher than for May of last year. As compared with April, more cases of smallpox, typhoid fever and malaria were reported, with more or less declines in the prevalence of diphtheria, influenza, measles, poliomyelitis, scarlet fever and whooping cough. There were more cases of diphtheria, scarlet fever, smallpox and typhoid than were reported in May a year ago, with less influenza, measles, poliomyelitis and whooping cough.

Among the industrial policyholders of the Metropolitan Life Insurance Company, the mortality for May, 1924 (9.3 per 1,000), was the most favorable for this month in the history of the company, with the exception of May, 1921. The mortality for May, 1923, was 9.9.

All but one of the principal diseases, namely, cerebral hemorrhage, showed declines in the rates as compared with April. The accident rate rose very slightly, but automobile fatalities declined, and were fewer in number than in May of last year or of 1922. This may have been due to the unseasonable weather conditions which may have curtailed automobile traffic.

Comparisons with May of last year show lower death rates for all of the principal diseases except scarlet fever, cerebral hemorrhage, pneumonia and other respiratory conditions and diarrheal complaints.—*Statistical Bulletin*, Metropolitan Life Insurance Co. (June), 1924.

Accident Mortality Among Insured Wage Earners in American States and Canadian Provinces, 1923.—The year 1923 had one of the best public health records in the history of the United States and Canada. But, associated with this, there was a most disconcerting record of mortality from accidents. Deaths from accidents accounted for more than 7 per cent of all the mortality during 1923 among the 15,000,000 policyholders in the Industrial Department of the Metropolitan Life Insurance Company. One accidental death in every four was due to the automobile.

The highest rate for any state was recorded for Idaho, 115.5 per 100,000; Florida was next in order, with a rate of 110.5, and Oklahoma with 91.6 among white persons and 100.3 for colored persons followed. The lowest rate was recorded for the province of New Brunswick, 31.1 per 100,000.

Considered according to broad geographic divisions, we find that the eastern Canadian provinces had the lowest fatal accident death rate, 43.3. The New England states rank second with a rate of 52.5, and the western provinces of Canada third with 54.4. The mountain states, with 84.3, showed the highest rate.—*Statistical Bulletin*, Metropolitan Life Insurance Company (June), 1924.

Vital Statistics, Canada, 1923.—Canada's birth rate in 1923, based on a preliminary report of vital statistics for the eight provinces, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia, was 23.3 as compared with 25.1 in 1922 and 26.3 in 1921.

Deaths from all causes numbered 70,063, giving a crude rate of 10.5 per 1,000 population, the same as in 1922. Diseases of the heart were given as the cause of death in 7,471 cases, or 10.7 per cent of all deaths. Pneumonia took a toll of 6,226 or 8.9 per cent of all deaths; cancer, 5,151 or 7.4 per cent; tuberculosis, 4,777 or 6.8 per cent; influenza, 3,578, and diseases of the arteries, 3,174.

The marriage rate of 7.3 per 1,000 population was the same as for 1922. The rate for 1921 was 7.9.—*Preliminary Report of Vital Statistics*, Canada, 1923, Dominion Bureau of Statistics, Ottawa, 1924.

Public Health in Federated Malay States.—The census of April 24, 1921, showed the population of the Federated Malay States to be 1,324,890; the Chinese population 494,548, the Indian 305,219, and the Europeans 5,686. There were in 1922, 34,906 births and 35,028 deaths, the rates being 26.65 and 25.74 per 1,000, respectively. The death rate is the lowest recorded for twelve years. The infant mortality rate was 170.83. As usual, malaria heads the list as the most important cause of sickness and death. There were no cases of cholera.—*Lancet*, 1:1295 (June 21), 1924.

Public Health in Kenya Colony and Protectorate.—There was no epidemic in 1922. The general public health was satisfactory. The registration of births and deaths is not compulsory, save for Europeans. In Mombasa the crude death rate was 16.7 per 1,000, and in Nairobi 21 per 1,000. The Nairobi rate is capable of analysis and reveals crude death rates for Europeans, Asiatics and Africans of 12.4, 15.6 and 27.9 per 1,000, respectively. Over the whole country, the number of European births and deaths was 261 and 89, giving crude birth and death rates of 27.04 and 9.04 per 1,000. The figures for the 1921 census were: Europeans, 9,651; Indians, 22,882; Goans, 2,431; Arabs, 10,102; others, 62; total, 45,633.—*Lancet*, 1:1296 (June 21), 1924.

Health Conditions in Swaziland, 1922.—In May, 1921, the European population in the protectorate was 2,205 and the native Bantu population was 110,295. During 1922 the general health was good. Smallpox was epidemic in a mild form, but the number of deaths from the disease has been small. The bulk of the native population has been successfully vaccinated. There has been very little malaria during the year. Syphilis continues to be a troublesome disease among the native population, but every effort is being made to deal with it. Only a few cases of influenza, of a mild type, occurred during the year.—*Lancet*, 1:1090 (May 24), 1924.

Public Health in Ceylon, 1922.—The population of Ceylon on December 31, 1922, was 4,621,147, of which only 9,100 were Europeans. The birth rate was 39.4 per 1,000 and the death rate 27.8 per 1,000 of population. The mortality of children under one year was 26.7 per cent of the total deaths during the year. The death rate from influenza, 525 per 1,000,000, was the lowest recorded since the pandemic of 1918, but the pneumonia death rate of 1,640 was higher than that of 1920 and 1921, although considerably less than that of 1918 and 1919. The death rate from diarrhea was 2,127, from pulmonary tuberculosis 681, from dysentery 551, and from malaria and malarial cachexia 449. It is now nine years since plague broke out in the island. The disease took a relatively small toll this year, however, 143. There were 40 deaths registered from smallpox and 4 from cholera.—*Lancet*, 1:1089–1090 (May 24), 1924.

Public Health in Seychelles, 1922.—Mahe, the largest of the islands under the Seychelles government, had a population on December 31, 1922, of 25,176. Births numbered 753, at a rate of 30.47 per 1,000, and the death rate was 13.92. This is the lowest record for many years, and is to be attributed to the fact that there were no epidemics of any infectious or contagious disease during the year. Seychelles is reputed to be one of the most healthful of the British possessions within the tropics. Its climate is mild and equable.—*Lancet*, 1:1090 (May 24), 1924.

Tuberculosis in Australia.—The Commonwealth of Australia, with a population of approximately 5,500,000, had during the year 1921, a death rate from all forms of tuberculosis of 68 per 100,000. The pulmonary death rate was 59. Tuberculosis caused 7 per cent of the total deaths.—*J. Outdoor Life*, 21:426 (July), 1924.

Tuberculosis in Vancouver, British Columbia.—The tuberculosis death rate in Vancouver, British Columbia, was 115 per 100,000 in 1923, as compared with 123 in 1922, 127 in 1921, 136 in 1920, and 143 in 1919. There are 10,000 Asiatics in Vancouver. In these Oriental residents one death in every three was due to tuberculosis, whereas in the general population the ratio was one to ten.—*N. Y. Tuberculosis Association Bull.*, 5:20 (May-June), 1924.

Tuberculosis in Hungary.—In Hungary, during 1922, tuberculosis claimed first place as a cause of death, the rate having been 241 per 100,000 population. The general death rate in 1922 was 19.6 per 1,000 and the infant mortality rate 195 per 1,000 births.—*N. Y. Tuberculosis Association Bull.*, 5:21 (May-June), 1924.

Tuberculosis in Scotland.—A slight decrease in the tuberculosis death rate of Scotland took place during 1923, the rate being 118 per 100,000, as compared with 119 in 1922. A slightly higher number of deaths from this cause occurred among men, 3,008 as against 2,776 among females. The deaths from pulmonary tuberculosis were 69 per cent of the total, the rate being 81. The tuberculosis death rate is higher in the larger burghs than in the rural sections. The rate in Glasgow was 150, that in Dundee 144, and that in Edinburgh, 126. In Scotland, as in England, during the past three years the tuberculosis death rate has been practically stationary.—*N. Y. Tuberculosis Association Bull.*, 5:20 (May-June), 1924.

SANITARY ENGINEERING

ABEL WOLMAN, C.E.

Water-Borne Typhoid at Ramsey, Mich.—Thirty-six cases of typhoid fever occurring in a town of 1,800 population are attributed to the use of untreated highly polluted river water. This river water was piped by a mining company for fire protection and, at the request of the town residents was connected to their homes for domestic use. Although the people were warned by the company that the water was unfit for drinking the warning was unheeded and the epidemic resulted.—*Eng. News-Rec.*, 92:1105 (June 26), 1924. A. W. B.

Over-Chlorination of Water for Taste Control.—A large dose of chlorine was placed in the reservoir to kill gnats which were making an otherwise satisfactory water disagreeable by laying eggs, which hatched into red worms that traveled through the system. The gnats were killed, but a very disagreeable taste followed. By further increasing the dose of chlorine all tastes disappeared.—W. B. Bushnell, *Mun. & Co. Eng.*, 66:266 (June), 1924. A. W. B.

Health of Foreign Miners.—A study of health and sanitation in mines of foreign countries, indicates a great prevalence of silicosis among certain groups of miners; in South Africa it costs the industry about £1,000,000 annually. Pneumonia causes many deaths among South African natives. Intestinal diseases in mines occur more frequently among workers from tropical countries than among those from temperate climates. Typhoid epidemics have been averted or controlled by administration of typhoid vaccine. Examination of 10,228 miners in Australia showed that 6.3 per cent were affected with hookworm. In practically all mining districts the efficiency of miners is decreased by high air temperature and humidity.—*Nation's Health*, 6:346 (May), 1924. A. W. B.

Stone Dusting in Coal Mines.—The British Mines Department, to prevent propagation of explosions in coal mines, requires mines to be so treated with incombustible dust that dust on floors, sides and roof of mine contains not more than 50 per cent of combustible matter.—*Nation's Health*, 6:368 (May), 1924. A. W. B.

Malaria Incidence in Russia.—The losses through epidemic malaria and the cost of treatment is estimated at eight billion rubles in the Kuban district of Russia. The number of cases reported annually reaches 5,000,000.—*Nation's Health*, 6:347 (May), 1924. A. W. B.

Danger Lurks in City Weeds.—The growth of weeds in vacant lots is not only unsightly, but a real menace to health. Hay fever is directly chargeable to ragweed, wormwood, cocklebur, sorrel, amaranth and pigweed, which grow in profusion in city waste places. Poison ivy, elder or sumac, Indian tobacco, pokeweed, smartweed, Mayweed, fleabane and some species of buttercups cause severe skin diseases. In addition to being direct disturbers of human health, these weeds prevent the prompt evaporation of moisture, and so provide excellent breeding places for mosquitoes, flies and other disease carriers. Some thoughtless people take advantage of a growth of weeds into which to dump garbage and other trash, increasing its facilities for insect breeding, which results in greater dissemination of disease.—Albert A. Hansen, *Am. City*, 31:16 (July), 1924. A. W. B.

Stream Pollution by Industrial Wastes and Its Control.—A brief historical outline of stream pollution problems is given and means employed to remedy the evil. Freedom from odors, unsightliness and disease-producing bacteria, and sufficient oxygen content so that natural plant and animal life will not be destroyed constitute a clean stream. Coördinated action by city, state, federal and industrial officials, together with the proper public spirit acting as a commission functioning somewhat as a circuit court, meeting in different parts of the state at set times and considering cases which have been assigned some time in advance, is suggested. "A body acting in judicial capacity, hearing evidence and weighing it carefully, handing down its decisions promptly, and holding offenders undeviatingly to compliance with their orders, could in five years so change the conditions of badly polluted streams in any state that they would scarcely be recognized as the same bodies of water."—J. Frederick Jackson, *Am. City*, 31:23 (July), 1924. A. W. B.

Alum Agitation Studies at Reading, Pennsylvania.—Agitating or mixing alum-treated waters before sedimentation is an important factor in coagulation, causing rapid diffusion of added chemicals permitting intimate contact between floc and suspended matter. Data indicate following possible range in mixing: 20 min. mix at 0.25 ft. per second average velocity, and 8 min. mix at 0.8 ft. per second average velocity. When coagulation and sedimentation precede slow sand filtration, theoretical period of sedimentation of 4 hours is sufficient. This is reduced to 2 hours or less in the case of mechanical filtration.—Chas. R. Cox, *Eng. News-Rec.*, 93:101 (July 17), 1924. A. W. B.

Inverse Relation Between Iodin in Food and Drink and Goiter, Simple and Exophthalmic.—Iodin content of various foods and waters in goitrous and nongoitrous regions. Milk, leafy vegetables and some fruits contain the highest amount of iodin of any land products. A three-day experiment with diet of certain foods showed a retention of 0.036 mg. iodin. At this rate 10 years would be required to accumulate 40 mg. of iodin, the amount contained in a normal thyroid gland. The table of iodin content of drinking waters shows highest to be 18,470 times as great as lowest. Treating with one-tenth pound of sodium iodide per million gallons of water would give a content one-fifth to one-tenth that of some cities of this country and, assuming a liter of water to be consumed per day, 0.01 mg. of iodin, which is the normal quantity retained by a person, would be retained and the iodin requirements would be satisfied.—J. F. McClendon and Joseph C. Hathaway, *J. A. M. A.*, 82:1668 (May 24), 1924. A. W. B.

Sensitive Detection of Suspended Matter and Proposed Standard of Clarity in Filtered Water.—Details of sensitive turbidimeter which accurately indicates turbidities as low as 0.1 p.p.m. Standard of clarity for filtered water: colloidal turbidity should not exceed 0.5 and composite sample should not exceed 0.2. Floc turbidity for combined effluent should not exceed 0.04 and composite sample should not exceed 0.01.—John R. Baylis, *J. A. W. W. A.*, 11:824 (July), 1924. A. W. B.

How Polluted Water May Be Made Safe.—As the cost of obtaining an originally pure water supply may be prohibitive, it is necessary to purify sewage polluted water. This is accomplished by sedimentation, filtration through sand, and chlorination.—Dr. Matthias Nicoll, Jr., *Am. City*, 31:44 (July), 1924. A. W. B.

New York Protects Aqueduct Water with Chlorine.—During a shutdown in service an aqueduct carrying water to the reservoir in Central Park, New York City, was found to leak in some of the joints. Although seepage was only rain water, the possibility of a break in the two sewers paralleling the aqueduct necessitated the installation of a chlorinating plant to protect the supply.—*Am. City*, 31:44 (July), 1924. A. W. B.

Terre Haute's Enviable Record.—From 1900 to date, the population has increased from 57,000 to 67,000, and city water consumers from 5,000 to more than 10,000, and the typhoid death rate has decreased from 58 per 100,000 to 3 per 100,000, a remarkable indication of the value of laboratory control in insuring safety of a water supply.—*Am. City*, 31:47 (July), 1924. A. W. B.

An Emergency Pumping Unit for a Small Water-Works.—A break in the main line from well to pumps, leaving only a contaminated supply nearby, indicated the necessity for an emergency unit. Plant City, Fla., has since installed an emergency pumping plant to prevent interruptions to service.—E. S. Tyzer, *Am. City*, 31:55 (July), 1924. A. W. B.

A Note on the Prevention of Lead Poisoning in Certain Rubber-Working Industries.—Rubber working industries utilize compounds of lead to accelerate the vulcanization process. To overcome the lead poisoning hazard it was recommended that litharge and petrolatum be prepared at a point removed from all other workers, and that this salve, composed of litharge and petrolatum (8:1), be brought to the compounding room and added to each "batch." This eliminated toxic dust from contact with all but one worker.—Leonard Greenberg, *Pub. Health Rep.*, 39:1567 (June 27), 1924. A. W. B.

Iodin Deficiency and the Prevalence of Simple Goiter in Michigan.—Survey of various sections of the state showed marked correlation between iodin deficiency and thyroid enlargements. Methods of prevention consist

of an administration of sodium iodide in chocolate tablets once a week for forty weeks to all school children, iodizing the drinking water, and the use of iodized salt.—Dr. R. M. Olin, *Pub. Health Rep.*, 39:1568 (June 27), 1924. A. W. B.

Sodium Iodide Treatment of Water Supply.—Rochester, N. Y., treats its water supply twice a year for a three-weeks period with sodium iodide to prevent simple goiter. The cost is about one cent a year per person. Opposition to the plan is discussed together with other methods of goiter treatment. No ill effects have been noted from the treatment, and sufficient time has not elapsed to note the benefits derived.—Beekman C. Little, *Canadian Eng.*, 47:155 (July 15), 1924. A. W. B.

Water-Borne Disease Epidemic in South Pasadena.—An epidemic of intestinal diseases, including eighteen cases of typhoid fever and one paratyphoid, occurred recently and attributed to leakage from a sewer which gained access to a low-pressure water pipe through holes believed to have been made by the corrosive action of sewer gas.—*Eng. News-Rec.*, 92:1019 (June 12), 1924. A. W. B.

Necessity for Small Tunnel Ventilation.—The greatest danger from carbon monoxid gas poisoning exists in the comparatively small cab stand tunnels built in connection with railroad terminals and enclosed driveways for public and semi-public buildings. Carbon monoxid of 2 parts per 10,000 of air is injurious to the human system. Tunnel ventilation by means of fans offers no great difficulty in the way of obtaining an ample degree of safety.—Arthur L. Greene, *The Nation's Health*, 6:327 (May), 1924. A. W. B.

Outbreak of Paratyphoid Fever Traced to Certified Dairy.—The cause of fifty cases of paratyphoid at New Rochelle, N. Y., and neighboring municipalities, was traced to a certified milk produced at and sold by one dairy. Examination of dairy workers indicated one to be a carrier of *Bacillus paratyphosus B.* Acute mastitis from which *Streptococcus hemolyticus* was isolated was discovered in one of the cows.—*Pub. Health Rep.*, 39:1571 (June 27), 1924. A. W. B.

Some Further Observations on the Species Method of Differentiating Fecal Organisms in Surface Waters in the Tropics.—Studies were made to check earlier observations and suggestions of Clemesha regarding variations in water organisms of varying origin. Findings indicate that *B. Coli communis* is about the commonest organism in recently polluted waters or crude human feces, and at the same time the rarest fecal organism in waters which have been subject to prolonged storage. In freshly polluted water or crude human feces a large number of species is met with. In waters after prolonged storage only one or two species are encountered. This fact of altered ratios offers an added diagnostic index of degree of storage.—A. D. Stewart and V. Gobinda Raju, *Indian J. Med. Research*, 2:1157 (April), 1924.

Note on the Appearance of a Violet Producing Organism in Certain Water Supplies of the Madras Presidency.—Sudden appearance of violet-producing bacteria in three water supplies is noted, although sixteen years of observation of these supplies had not disclosed a similar type. Tracing of origin was unsuccessful. Organisms are similar to *B. violaceum*, described by Lehmann and Neumann, but differ in that the three strains here isolated are gram negative and do not produce indol.—J. Cunningham and T. N. S. Raghavachari, *Indian J. Med. Research*, 2:1285 (April), 1924.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASES

DRS. E. R. HAYHURST and N. C. DYSART

Health Conditions in the Painting Industry.—In a survey of working conditions in the painting trade in Chicago in 1921, 53 per cent of union members reported that they were suffering from occupational or other ailment, and were in many instances without medical attendance owing to insufficient funds to pay for such service. Six per cent of the members earned more than $1,522; 33 per cent earned less than $1,522; the remaining 61 per cent earned less than $2,324, but more than $1,522. The average, suggested by the members as the minimum on which to maintain a family in decency and comfort, is $2,324. Of the members reporting, an average of 24 per cent worked more than 20 days per month; 29 per cent were unemployed, and 47 per cent were working on an average of 10 days per month. While the manufacturer looks upon the expenditure of money for accident prevention and the maintenance of health as an investment, in the building industry the worker is left to his own devices in the matter of such protection. Painters are subject to great accident hazards, as shown by the tabulated reports of 2,200 members from the respective local unions which contain records of 162 accidents during the year 1921, which is equal to 7 per cent, or 70 per 1,000 members. Allowing that 8 per cent of these accidents were not directly due to the trade, there remains an accident rate of over 6.8 per cent chargeable to the industry. Many of the poisons with which the painters come in contact are hidden in the form of such composite material as ready-made paint, varnish remover, etc. A questionnaire was submitted to the union membership, in which information was asked as to the prevalence of lead poisoning, heart trouble, kidney disease (nephritis), inflammation of the knee, arm and shoulder afflictions, and accidents. Replies indicated that 53 per cent of the members who reported were suffering from one or more of these ailments, causing a loss of time amounting to 1,447 working days for every 100 members during the year 1921. The average age of the members was forty-two years.

In this report only such diseases are included as have already been diagnosed by the attending physician, or are known to the members by their painfulness or suffering. The report states that 32 per cent of those members who reported have suffered from arm and shoulder afflictions, and that these are by far the most prevalent occupational diseases of painters. Among the preventive measures suggested are (1) prohibition of white lead in interior painting; (2) periodic medical examination; (3) organization of a Safety and Health Bureau; (4) in work especially hazardous to health, as in flat lead work, floor work, etc., the members should frequently change to some other work less hazardous; (5) shortening of working hours, preferably by the inauguration of the five-day week. More recreation and out-of-door living are needed to offset the ill-effects of daily inhalation of poisonous fumes.—J. A. Rumberg, Painters District Council No. 14, Chicago, in "*Survey of Working Conditions in the Painting Trade in Chicago, 1921.*"

Carbon Monoxide from Heaters Burning Natural Gas.—The United States Bureau of Mines has made extensive investigations of room heating stoves burning natural gas, to determine what types give incomplete combustion products, why there is incomplete combustion, and how the different types of heaters can be made to operate more safely and efficiently by proper adjustment or change in design. It has been found that fatalities result from (1) faulty design by the manufacturer; (2) properly designed by the manufacturer but with too many adjustments left to the judgment of the user who in most cases does not know how to adjust properly, i.e., very few users know that a radiant type heater is very dangerous if the primary air-shutter is closed; (3) properly designed by the manufacturer with few adjustments, but deliberately tampered with by the user mainly to get a greater gas flow than the heater is capable of burning efficiently. Carbon monoxide is the one gas that causes fatalities due to natural gas heaters when combustion is not complete. The two principal reasons why

natural gas heaters liberate carbon monoxide are: (1) Not supplying sufficient air to the burning gas to give complete combustion, and (2) attempting to burn too large a volume of gas in a given space. Natural gas requires twice as much air as does artificial gas to give complete combustion. The heating device properly designed for artificial gas may prove inadequate for the combustion of natural gas. The authors summarize as follows: "With reference to the types of heaters which produce carbon monoxide, it might be said that all the types of heaters tested could be made to produce carbon monoxide—in other words, there are no fool-proof natural gas heaters. However, the quantity of carbon monoxide produced varies over wide limits, and some heaters are made as nearly fool-proof as it is possible to make them.

"Manufacturers can be of great help in reducing the number of fatalities by supplying orifices of such a size that the user cannot operate the heater at excessive gas rates. Some manufacturers should redesign their air-injecting tubes to give higher primary air-gas ratio. This is very important in the case of the radiant type heater. Primary air-shutters should be eliminated whenever possible, and in case good adjustment cannot be obtained by omitting them a safety stop should be provided so that the shutter cannot be completely closed. Manufacturers, distributors and retailers should explain to prospective customers the methods of operation for efficient combustion, and tell of the limitations of their heater, and the dangers therefrom if not properly operated."—G. W. Jones and W. P. Yant, *Jour. Amer. Soc. of Heating & Ventilating Engineers*, 29, No. 9, 669 (December), 1923.

Lead Poisoning Bill.—The Lead Paint Bill being considered by the House of Commons was drawn up in accordance with the agreement arrived at by the Conference of the International Labour Organization at Geneva. Painters are unanimously in favor of the bill, while white lead manufacturers oppose it. The fundamental principles of the bill were that after November 19, 1927, it would be unlawful to use lead paint in painting any part of the interior of a building, and that the employment of women and young persons in painting any part of a building with lead paint should be prohibited. The convention has been formally ratified by Czecho-Slovakia, Esthonia and Sweden, and ratification has been authorized by Austria, Greece, Italy and Holland. From 1910 to 1923 the Factory Department received notice of 1,500 cases of lead poisoning, 300 of which were fatal. Home Office experts denied that water-proof sandpaper for rubbing down paint would remedy conditions. —*Lancet* (London), CCVI, No. 5261, 1341 (June 28), 1924.

Sickness in Cotton Mill Communities.—Study was made of 24 cotton mill-villages in South Carolina in the year 1917 with reference to disabling sickness of the mill workers and their families. The canvass was commenced on April 2 and continued to December 22. In all, 55,067 observations regarding illness were made with a population of approximately 22,000 persons, and 1,241 cases of disabling illness were reported. The prevalence rate for disabling sickness varied from 18.1 to 36.5 per 1,000, according to the season of the year. An annual average of the number of days of disabling sickness per person was 9.3 for all persons. A definite wave of disabling sickness appeared in the late spring and early summer, approximately the period of high pellagra prevalence. There was an inverse relation of disabling illness and family income for persons of both sexes, all ages, and for practically all seasons of the year. Chronic illness varied but little by the season of the year, but illnesses of short duration showed a marked variation, a definite peak occurring in May–June. No significant differences in relation to family income were shown for illness of short duration. The incidence of serious illness, however, in the late spring and early summer was greater among those whose income was relatively low than among the better off. Severe illness of late spring occurred relatively more frequently at the age fifteen to twenty-four. The peak of absenteeism occurred in February for both men and women. Absence from work on account of sickness was highest during the spring and early summer and relatively highest as compared with absences from other causes during the late spring-early summer period.—Dorothy Wiehl, *U. S. Pub. Hlth. Reports*, 39, No. 24, 1417 (June 13), 1924.

Health Hazards in the Chemical Industries.—In a report, the American Chemical Society Committee on Occupational Diseases and Hazards in the Chemical Trades recommends that first hand information on industrial hygiene, as pertains to the chemical industry,

be brought to the industrial chemist and chemical engineer, and suggests that this be accomplished by giving definite instruction on the subject as a part of every course in chemical engineering or industrial chemistry. The committee recognizes that all courses are filled with essentials, but insists that industrial hygiene is the essential of essentials. The committee believes that a genuine industrial health survey of the American chemical industry is needed. already been m clusions bear Employees in undergo freque report contains articles dealing chemical trade *Chem.*, 16, No.

Reconstructic tributions of s from $1 to $500 increase in fre York Reconstr and Central Pa 1922-23. At re have amounted for the year pr pletely equipped injury, and is be than most othe treatment is sub management to injury, and the shown a satisfac the service still of treatments el has been appoin ing Dr. Charlto *Report*, 1922-23.

and the Workmen's Compensation Act, operates under four sections: the Sections Expert Inspection, Special Research, Acci Prevention, and Education. Inquiries sho be addressed to the Director of the Divis of Industrial Hygiene, New York State D partment of Labor, No. 124 East 28th Stre New York City.

Occupational Disease Compensation

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A New Publ ... *Industrial Hygiene Bulletin*, is being published by the Division of Industrial Hygiene of the New York State Department of Labor. It is to be issued monthly, and its purpose is "to aid in the conservation of the life and efficiency of that large army of persons who earn their livelihood in industry. It is intended as a medium through which to acquaint the medical profession, the employers and the employees in industry with the industrial hygiene side of conditions as they affect workers." The Division, which has recently enlarged its scope and activities to meet the requirements of the New York State Labor Law

... industry are affected likewise and ... traffic of course suffers the consequences. ... its report in Bulletin No. 135, "Railro Malaria Surveys," the Public Health Servi recommends protection of employees b screening of bunk cars and section house prophylactic quinine for "floating" gangs an section men, anti-mosquito campaigns in sho towns and division points, educational meas ures and coöperation with state and loca health department in the inauguration of anti mosquito campaigns in cities, malaria towns and farming communities on the lines of affected railroads.—*Health News, U. S. P. H. S.* (July), 1923.

Married Women in Industry.—It is pointed out by Mary N. Winslow, Women's Bureau of the United States Department of Labor, that women are losing health and vitality because of overfatigue resulting from the combination of long factory hours and long hours of work at home. The number of employed married women per 100 has increased from 5 in 1890 to 9 in 1920. This increase has been greatest in the manufacturing and chemical industries

companies which carry their own insurance. Both maintained hospitals with competent medical attendants. The analysis showed that 48.1 per cent of the injuries occur during the first two months of employment, and also that 20.5 per cent of the injuries occur during the first week. Therefore, many of the accidents occur before the man has become accustomed to the work in that particular mine. Consequently, if the work is on a contract basis, as

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may be normal in the first generation but the animals produce few or no young. It is suggested that "when the ratio of fat to protein is too high, the calorific value of the diet being also high, the animals consume a smaller amount of the diet, with the result that the protein consumption is decreased to a point at which normal reproduction and even normal growth is impossible, due to a deficiency of certain amino acids at this level of protein intake." On the other hand, diets high in protein and comparatively low in fat are detrimental to the rearing of young. Normal growth and reproduction resulted when whole

Chemical Preservatives in Foodstuffs.—The question is considered from two aspects: the action of the preservative on the foodstuff; the action of the preservative after ingestion on the system, especially the effects on the enzymes of the digestive juices. While from a theoretical standpoint it is probable that substances having an affinity for protein matter will retard or arrest the action of enzymes, there is lack of adequate experimental data on the physiological effect of many common preservatives. It is suggested that an exhaustive series of experiments by investigators of recognized authority should

be brought to the industrial chemist and chemical engineer, and suggests that this be accomplished by giving definite instruction on the subject as a part of every course in chemical engineering or industrial chemistry. The committee recognizes that all courses are filled with essentials, but insists that industrial hygiene is the essential of essentials. The committee believes that a genuine industrial health survey of the American chemical industry is needed. While formal surveys have already been made, "in some cases the conclusions bear the marks of partisan zeal." Employees in chemical industries should undergo frequent physical examinations. The report contains many short abstracts of recent articles dealing with the health hazards of the chemical trades.—*Jour. Indust. and Eng. Chem.*, 16, No. 6, 644 (June), 1924.

Reconstruction Hospital.—Voluntary contributions of some 5,000 persons who gave from $1 to $500 each made possible the great increase in free service given by the New York Reconstruction Hospital, 100th Street and Central Park West, for the fiscal year 1922-23. At regular rates this work would have amounted to $50,288 as against $30,098 for the year previous. The Hospital is completely equipped for the treatment of every injury, and is better able to care for such cases than most other institutions in which their treatment is subsidiary. It is the desire of the management to treat recent cases of industrial injury, and the number of these cases has shown a satisfactory increase; but the bulk of the service still consists of the bad end-results of treatments elsewhere. Dr. Joseph A. Blake has been appointed surgeon-in-chief, succeeding Dr. Charlton Wallace, resigned.—*Annual Report*, 1922-23.

A New Publication.—A new organ, the *Industrial Hygiene Bulletin*, is being published by the Division of Industrial Hygiene of the New York State Department of Labor. It is to be issued monthly, and its purpose is "to aid in the conservation of the life and efficiency of that large army of persons who earn their livelihood in industry. It is intended as a medium through which to acquaint the medical profession, the employers and the employees in industry with the industrial hygiene side of conditions as they affect workers." The Division, which has recently enlarged its scope and activities to meet the requirements of the New York State Labor Law and the Workmen's Compensation Act, now operates under four sections: the Sections of Expert Inspection, Special Research, Accident Prevention, and Education. Inquiries should be addressed to the Director of the Division of Industrial Hygiene, New York State Department of Labor, No. 124 East 28th Street, New York City.

Occupational Disease Compensation in New Jersey.—The State Senate of New Jersey, in November, 1923, appointed a commission for the purpose of determining what occupational diseases should be subject to compensation, and to suggest legislation to that end. The committee held a number of hearings and as a result of their deliberations the following occupational diseases were made compensable (under Chapter 124, Laws of 1924): Anthrax, lead poisoning, mercury poisoning, arsenic poisoning, phosphorus poisoning, benzine and its homologues, and all derivatives thereof, wood alcohol poisoning, chrome poisoning and caisson disease.—H. J. F. Wallhauser, *Monthly Bull.*, N. J. Dept. of Health, 7, No. 6, 1 (June), 1924.

Malaria and the Railroads.—In order to determine the cost of malaria to the Missouri Pacific Railroad Company, a survey was made by the United States Public Health Service. The cost of hospital treatment alone amounted to over $25,000 in the year 1920. This figure does not include transportation of patients, pay of employees absent from work with malaria, or the less tangible charges against the cost of operation by reducing the efficiency of labor, by producing a shortage of labor, and by causing a high rate of labor turnover. To be considered also are the discontent among the employees because of frequent illness and expense for medical service. Agriculture and industry are affected likewise and railroad traffic of course suffers the consequences. In its report in Bulletin No. 135, "Railroad Malaria Surveys," the Public Health Service recommends protection of employees by screening of bunk cars and section houses, prophylactic quinine for "floating" gangs and section men, anti-mosquito campaigns in shop towns and division points, educational measures and coöperation with state and local health department in the inauguration of anti-mosquito campaigns in cities, malaria towns and farming communities on the lines of affected railroads.—*Health News, U. S. P. H. S.* (July), 1923.

Married Women in Industry.—It is pointed out by Mary N. Winslow, Women's Bureau of the United States Department of Labor, that women are losing health and vitality because of overfatigue resulting from the combination of long factory hours and long hours of work at home. The number of employed married women per 100 has increased from 5 in 1890 to 9 in 1920. This increase has been greatest in the manufacturing and chemical industries and in occupations connected with trade; there having been a 12 per cent decrease in those engaged in domestic service. Miss Winslow believes the solution to the problem lies in increasing the family income so that the employment of married women will be unnecessary.—Ed. *Hygeia*, 1, No. 9, 587 (December), 1923.

Who Pays for the Accidents?—It seems that one of the main reasons why there are so many accidents is that there is so little general knowledge regarding their causes and costs. The author analyzed the complete accident and medical reports of two large metal mining companies which carry their own insurance. Both maintained hospitals with competent medical attendants. The analysis showed that 48.1 per cent of the injuries occur during the first two months of employment, and also that 20.5 per cent of the injuries occur during the first week. Therefore, many of the accidents occur before the man has become accustomed to the work in that particular mine. Consequently, if the work is on a contract basis, as the majority of it was in these two mines, the man had not become trained enough to reach his maximum earning capacity, or to give the company full value for the money being paid him.

The mining industry will most quickly lessen the hazards of mining by keeping uniform accident records that will facilitate the scientific study of accident prevention by companies working individually or in coöperation with other companies and with state and federal safety organizations.—Richard V. Ageton, *Reports of Invest.*, U. S. Bur. of Mines, Serial No. 2535, 4 pages (October), 1923.

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FOOD AND DRUGS

C. L. ALSBERG, M.D., AND D. B. DILL

Diet in Relation to Reproduction and Rearing of Young.—Data is presented which indicates that it is unnecessary to assume the existence of Evans' reproductive vitamin. Evidence was obtained which indicates that it is a matter of considerable importance that the ratio of fat to protein be within certain limits to obtain optimum results. If the proportion of fat to protein is too high, growth may be normal in the first generation but the animals produce few or no young. It is suggested that "when the ratio of fat to protein is too high, the calorific value of the diet being also high, the animals consume a smaller amount of the diet, with the result that the protein consumption is decreased to a point at which normal reproduction and even normal growth is impossible, due to a deficiency of certain amino acids at this level of protein intake." On the other hand, diets high in protein and comparatively low in fat are detrimental to the rearing of young. Normal growth and reproduction resulted when whole milk powder was the only source of protein and vitamins in the diet, although a high mortality of the young on many of the diets studied was noted. It is concluded that in order to obtain optimum results in nutrition the proportions of fat, protein, and salts must be within certain limits. L. T. Anderegg, *J. Biol. Chem.*, 59, 587–599 (1924).

Chemical Preservatives in Foodstuffs.—The question is considered from two aspects: the action of the preservative on the foodstuff; the action of the preservative after ingestion on the system, especially the effects on the enzymes of the digestive juices. While from a theoretical standpoint it is probable that substances having an affinity for protein matter will retard or arrest the action of enzymes, there is lack of adequate experimental data on the physiological effect of many common preservatives. It is suggested that an exhaustive series of experiments by investigators of recognized authority should

be undertaken to study the effect of chemical substances used for food preservation on enzyme action generally, and on cell growth.—A. E. Parkes, *J. Soc. Chem. Ind.*, 43, 509–10 (1924).

Hydrogen Sulphide Determination in Bacterial Cultures and in Certain Canned Foods.—An improved procedure for determination of hydrogen sulphide is described. The method may be used satisfactorily to determine volatile sulphur in foods. Canned gooseberries which had been sprayed while immature with lime-sulfur spray, contained large quantities of hydrogen sulphide. No hydrogen sulphide was found in decomposed salmon or shrimp by this method.—C. R. Fellers, O. E. Shostrom and E. D. Clark, *J. Bact.*, 9, 235–49 (1924).

Cornstalk Sirup Investigations.—A process for manufacture of cornstalk sirup has been successfully developed. In most respects the method used is similar to that used in the manufacture of sorghum sirup. After picking the ears for canning the stalks are allowed to stand in the field for 10 to 20 days. The larger varieties yield 9 to 10 tons of stalks to the acre. One ton of such stalks yields 11 to 12 gallons of sirup. Cornstalk sirup is usually clear, of a reddish-amber color, and has a mild, agreeable flavor. It is not a table sirup, however, but a cooking sirup with characteristics and uses very similar to those of sorghum and molasses.—J. J. Willaman, G. O. Burr, and F. R. Davison, Univ. of Minn., *Ind. Eng. Chem.*, 16, 734–9 (1924).

The Color of Cow Milk and Its Value.—Color of milk is discussed in relation to per cent fat, size of fat globules, color of the fat as affected by feed, colostral fat, colloids, whey pigment and vitamines. By comparing the color of the fat of the milk from cows on different feeds it was concluded that "pigmentation of the fat roughly was parallel to the amount of green feeds assimilated."—F. J. Doan, *J. Dairy Sci.*, 7, 147–53 (1924); *Chem. Absts.*, 18, 1720.

Fermentation of Natural Fruit Juices.—Intelligent enforcement of the liquor laws has demanded more accurate information on the spontaneous fermentation of fruit juices. The writers found that in the natural fermentation of either pure fruit juice or of that to which glucose has been added, maximum alcoholic content was reached in from 7 to 10 days at a temperature of 21° C. No material increase of acidity was observed until the alcohol content had reached or passed the peak. Addition of glucose retarded the oxidation of alcohol to acid.—B. A. Dunbar and C. F. Wells, So. Dakota State College, *Ind. Eng. Chem.*, 16, 739–40 (1924).

The Nutritive Properties of Wild Rice (Zizania Aquatica).—Wild rice contains a higher per cent of protein than many cereals, but it resembles many other cereals in containing proteins of rather low biological value. It also resembles other cereals in containing inorganic material unsuitable for the promotion of growth and in being very deficient in vitamin A, although enough of this vitamin is present to prevent xerophthalmia. Wild rice has a greater food value than the cultivated, polished rice because its proteins are of better quality and it contains adequate amounts of vitamin B for animal growth.—Cornelia Kennedy, *J. Agr. Research*, 27, 219–24 (1924); *Chem. Absts.*, 18, 1721.

The Value of Gelatin and Gelatin Preparations in the Diet of Man.—The addition of 1 per cent gelatin to milk shortened its digestion in man; caused a more complete binding of HCl, and formed finer and softer curds than when plain milk was given. Sick children, tuberculous patients, and convalescents were greatly improved by the addition of gelatin to the diet. When gelatin supplanted meat in the diet of man, the daily output of indican fell from 8.25 mg. to 0.70 mg. on the fifth days of the diets; total phenols fell from 506 mg. to 193 mg. This was due to the low tryptophan and tyrosin contents of gelatin.—P. B. Hawk, *Proc. Soc. Exptl. Biol. Med.*, 20, 269–70 (1923); *Chem. Absts.*, 18, 1848.

The Effect of Sodium Hydroxide on the Composition, Digestibility, and Feeding Value of Grain Hulls and Other Fibrous Material.—Treatment with 1.5 per cent sodium hydroxide of oat and barley hulls greatly increased their digestibility. Oat hulls were doubled in available food constituents. Rice hulls were improved in digestibility, but negative results were obtained with cottonseed hulls and flax shives.—J. G. Archibald, *J. Agr. Research*, 27, 245–65 (1924).

CHILD HYGIENE

TALIAFERRO CLARK, M.D.

Revision of the School Lighting Code.—A revision of the School Lighting Code issued by the Illuminating Engineering Society in 1918 appeared in a recent number of the transactions of the society. The revised code is very complete. It has been entirely rewritten, is much enlarged, and contains many new illustrations.

The new code aims to meet the demand for more definite and detailed specifications and is intended to serve as a guide to regulatory bodies interested in the formulation of enactments, rules, and regulations for the natural and artificial lighting of school buildings, and also as a guide to architects in planning the lighting of school buildings, and to school superintendents and other school authorities in better lighting conditions.

The required illumination for classrooms in the new code is 5 foot-candles as against 3 foot-candles in the old code; and the recommended illumination for classrooms in the new code is 10 foot-candles as against 3.5 to 6 foot-candles in the old code. The code is specific with regard to the range of reflection factor, and stresses the avoidance of glare in an interesting discussion of this problem.

It is stated that tests of daylight in well lighted school buildings indicate that in general the window-glass area should not be less than 20 per cent of the floor area. Since the upper part of the window is more effective in lighting the interior than the lower part, it is recommended that the top of the glass be at no greater distance than six inches below the ceiling; and that the sills of side windows be not less than three feet, or more than four feet above the floor. No direct light should reach the eyes of seated pupils from below the horizontal.

An interesting section is devoted to window shades. It is stated that shades should perform several functions, such as the diffusion of direct sunlight; the control of illumination to secure reasonable uniformity; the elimination of glare from the visible sky or from bright areas out of doors, such as light-courts, or adjoining buildings; and the elimination of glare from blackboards.

The different systems of lighting with diagrams of the standard types of units now in use are discussed, and excellent photographs are printed showing well lighted and poorly lighted school rooms, both from natural and artificial lighting.—Code of Lighting School Buildings, *Transactions of the Illuminating Engineering Society* (May), 1924.

The 1924 Health Education Conference.—The American Child Health Association has just issued a synopsis of the Health Education Conference held at Cambridge, Massachusetts, June 23-28, 1924. This conference was called by the Health Education Division, American Child Health Association, at the invitation of the Department of Biology and Public Health, Massachusetts Institute of Technology.

The summary of the principles developed and points emphasized at the conference was presented and adopted on the closing night, and recommendations of this summary were grouped under six main heads:

(1) Personal health of teacher.

(2) Personal health of pupil.

(3) Underlying principles of gradation of subject matter.

(4) Functions of specialists on the school medical program.

(5) The care of the preschool child.

(6) Measurement of results in health education.

The group expressed the opinion that no really good health work can be done if the teacher's health is not safeguarded, and that there is need for some direct work in promoting the personal health of the teacher.

With regard to the personal health of the pupil, it was the sense of the conference that it should be under a health supervision and medical examination to provide for every child to achieve the limit of its endowed capacity for well-being.

The personal health of the student teacher is important because of its effect on her teaching efficiency and because of the necessity of a high standard of personal health in teaching a proper health standard among the pupils.

The guiding principles for gradation of subject matter accepted by the conference are as follows:

A. *Choice of subject matter*

1. The chief emphasis should be on personal health in the kindergarten and up to the sixth grade.

2. The chief emphasis should be on community health and socially healthful behavior in grades seven, eight, and nine.

3. The chief emphasis should be on giving a scientific background in grades nine to twelve.

B. *Motivation*

1. Health Education activities should be purposeful, *i.e.*, they should develop permanent values for the children such as self-control, self-direction, and self-improvement.

2. The activities should be of value to children as children.

3. Activities should provide for the free expression of child nature.

In summarizing the conclusions of the teacher training section on courses of study for teachers in training it was reported that the program of instructions differs according to the type of institution. In institutions giving not less than a two-year course of study it was recommended that a first-year course in hygiene should be a part of the complete student health program. The prime object of this course should be the improvement of the health of the student. In the remaining years special training should be provided in methods of teaching health.

With regard to the relation of the specialist to the general health program the specialist is defined as "A person on the school staff with specialized technical training, not a special teacher whose work is dissociated from that of a classroom teacher."

The function of a specialist is:

A. To improve work of classroom teacher through supplying sound information or special technics (as in physical education).

B. To supervise instruction when this specially trained person has also had adequate teaching preparation and experience.

C. To supply fresh material and inspiration to the classroom teacher.

The specialist is considered also from the standpoint of his specific functions, coördination of work, relation to the classroom teachers.

The conference is on record as advocating laboratories in the preschool field, such as habit clinics and nursery schools. It is believed that such centers are most effective when associated with institutions of higher learning.

Furthermore, it is the belief of the conference that all forms of organizations that unify the home and school, such as parent-teacher, school nursing and visiting teacher associations should be encouraged and developed, and their activities coördinated. The rural districts are particularly in need of this type of service because of the association of the rural home.

Suggested tests for measuring the effectiveness of a school health program are as follows:

1. Health Habit Questions.
2. Recognition Tests.
3. Immunization Record for Smallpox and Diphtheria.
4. Physical Ability Tests.
5. Correlation of Individual Physical Defects.
6. Thorough Physical Examination (doctor's rating of child).
7. Growth Records.
8. Sanitation Score Cards of School Buildings.
   (a) Construction.
   (b) Use.
   (c) Air conditions in room.

—Abstract, Synopsis American Child Health Association.

Uniform Method for Recording Defects.—The Committee on Health Problems in Education of the Child Hygiene Section, of which Dr. M. E. Champion is chairman, is at work on the problem of suggesting a uniform method for recording the defects of school children. A copy of the plan under consideration may be obtained from

The General Secretary,
American Public Health Association,
370 Seventh Avenue,
New York City.

Every member of the Child Hygiene Section or of the Association who is working upon the physical examination of school children or who is interested in the subject, is strongly urged to secure a copy of the plan, criticize it, and suggest to the Committee the changes he thinks should be made. Communications relative to the Committee work should be addressed to

Dr. M. E. Champion,
Chairman, Committee on Health Problems in Education,
State Health Department,
Boston, Massachusetts.

HEALTH EDUCATION AND PUBLICITY

EVART G. ROUTZAHN

Three and a Half Pounds of Statistics.—Or 772 pages, of "Mortality Statistics" (1921) have been received from the Bureau of the Census. What use shall we make of them? Is not this enormous volume of basic data a challenge to our imagination, ingenuity and skill? In anticipation of the joint session on Vital Statistics at Detroit, the editor of this department longs for some ideas as to possibilities and some mention of actual uses made of such material.

Health Workers at Toronto.—Quite a group of national, state, and local health workers attended the publicity sessions in connection with the National Conference of Social Work in Toronto. Some were there, even from distant states, solely for the advantages offered to publicity workers. Detroit will be much nearer to many who will find much more of direct value to health workers in what the Health Education and Publicity Section will offer in October.

How One City Does It.—A city health federation mimeographed a one-sheet weekly bulletin for the information of its members and friends. In each issue there is included a graph or simple cartoon. Alternating numbers are devoted to the work of one of the federation's fourteen constituent members. Often one of these constituent societies or some other group will order extra copies of a particular bulletin and send them, as enclosures with their own material to their members. For example, 150 extra copies of bulletin dealing with the Fresh Air Camp were furnished the Social Service Federation and another 150 copies to the Exchange Club, organizations which have a part and an active interest in the camp. Copies of another issue dealing with the periodic health examination were furnished to and distributed by the medical society to its members. Thus the federation secures wide publicity at a minimum cost; *i.e.*, the cost of paper and labor of mimeographing. While the bulletin is primarily a vehicle for brief news items the editor sees to it that modern health ideas are woven in. Toledo is the city, and the Public Health Association issues the bulletin.

Be Ready for Detroit, 1924!—If you are eligible to Fellowship in the A.P.H.A., and if you wish to be listed with the Health Education and Publicity Section, please write to Secretary Calver at the New York headquarters. Only Fellows may become officers or committee chairmen of the Section. The Section extends a hearty welcome to those interested.

Which Is the Latest?—I have before me two typewritten sheets headed "Tentative Program" for a health meeting. I am rather certain that there is a later edition of the "tentative" program, or at least two copies so headed have reached me at different dates. Is one copy more or less tentative than the other? There is no date to help clear up the doubt. Why not have an office rule that every sheet going through a typewriter, unless instructions are to the contrary, shall be dated? Many minor inconveniences will then be avoided.

A Misinterpretation?—Will the motion picture based on Victor Hugo's "The Hunchback of Notre Dame" help or hinder the efforts for meeting the needs of the crippled? Please write the editor of this Department after you have seen the picture. Arthur Westerhelweg was stirred by the picture to discuss some of the psychological difficulties of the crippled.—"Those Hunchbacks of Notre Dame," *Hospital Social Service*, 10:33 (July), 1924.

Is It Miss, Mrs. or Mr.?—Dr. C. B. Smith, Mrs. Mary Brown, Miss Jessie Jones and plain Wm. B. Miller, with others of their local kindred appear on the letterhead of a tuberculosis association in a city located west of Montauk Point. Under the title of Executive Secretary appears Zoa E. Werday. Is it a Miss, Mrs. or Mr.? It sounds like a girl, but the other unadorned names all sound like men. How should one address Zoa? Does *your* letterhead offer any nomenclature problems to your correspondents?

How About Your Associates?—A canvass of the staffs of many departments and associations should reveal numerous young men and women doing some phase of publicity or edu-

cational work whose professional interests would be strengthened and stimulated through A.P.H.A. membership. Get them in before October so that they will be one year nearer to the professional status implied in being Fellows. Also, members of the Association can travel to Detroit at a reduced fare.

Publicity and Education Headquarters at Detroit.—The Section will have a rallying center at the Detroit meeting where kindred souls may be located and your problems can be solved through being "in conference" with others having like problems. "Headquarters" will have a varied collection of printed samples, health bulletins and magazines, health plays for children and adults, selected samples of choice newspaper stories and illustrations, and a collection of books useful to publicity workers. All interested in this field of work will be registered. Individual consultations and clinics on your own publicity material—posters, printed matter, letters, newspaper stories, etc.—will be arranged by appointment. Can you afford to miss such an opportunity? Should not your publicity staff workers enjoy these advantages?

A Double Program at Detroit.—The three half-day sessions to be conducted by the Health Education and Publicity Section at Detroit will be supplemented by the group of luncheon and dinner sessions which are planned for the discussion of technical problems which cannot be given a place on the formal programs of the Section. These extra sessions will be "brasstack" gatherings of those who know and those who wish to know.

Please Send Us the Curio You Discover.—When a letterhead, leaflet, report, etc., received by you contains any puzzles or curious examples of how other folks do it, please pass it on to the editor of this department.

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PUBLIC HEALTH LEGISLATION

JAMES A. TOBEY, LL.B.

LEGAL REPORTS OF FORMER YEARS

Reports on national and state legislation and court decisions have now been carried continuously in the JOURNAL since the beginning of 1920, and in a separate department since March, 1923. In 1916 the JOURNAL also had a department called "Legal Decisions," and since court decisions are, generally speaking, statements of the law for all time, it may be of interest briefly to review some of these cases cited eight years ago. At the very beginning, we find a report of a case upholding the constitutionality of the Harrison Antinarcotic Law, and later on several others relating to it. An Ohio case held a garbage reduction plant not to be a nuisance, while a South Dakota decision held that school boards may require a physician's report as a prerequisite to admission to school. A Kentucky case held that a city is responsible for sewage after it is discharged into the city's mains (*Kraver* v. *Smith*, 117 S. W. 286).

The Supreme Court of Oklahoma reversed a judgment for a plaintiff against the city of Duncan, in *Duncan* v. *Tidwell*, 150 Pac. 112, in which it was alleged that the plaintiff's family contracted typhoid fever from the city dump, where dead animals were deposited. The court held that there was insufficient evidence to show infection from this source. Another typhoid fever case is cited in a later issue. In *Vennen* v. *Dells Lumber Co.*, 154 N. W. 649, the plaintiff's family sued the lumber company under the workmen's compensation act, for his death due to typhoid contracted from his employer's drinking water. The court held this was recoverable as an injury. (NOTE: Similar decisions have since been reported.)

In Pennsylvania a water company was restrained by an inferior court from collecting its water rates during one and one-half months when its water was impure. Since the state law and also the charter of the water company required pure and safe water, the Supreme Court upheld this injunction as reasonable. *City of New Castle* v. *New Castle Water Co.*, 95 Atl. 534. In New York a local board of health fixed and attempted to apply a penalty for a violation of a nuisance after the particular nuisance had been committed, and this the court held as unconstitutional. *Village of*

Carthage v. *Colligon*, 110 N. E. 439. The Louisiana Supreme Court upheld a rat proofing ordinance of the city of New Orleans, in *New Orleans* v. *Beck*.

In Kansas the Supreme Court decided that a city ordinance may impose a higher standard for milk sold in the city than was required by the state law, provided such ordinance was in no way inconsistent with the state law. *Kansas City* v. *Henre*, 153 Pac. 548.

PLUMBING AND HEALTH

As an example of the fact that the general insignificance of plumbing as a factor in public health has not as yet entirely percolated into the courts, the Appellate Division of the New York Supreme Court has held, *City of Glens Falls* v. *Chapin*, 203 N. Y. S. 385, that "regulations by statute for installation of plumbing are made in the interest of, and for the preservation of, health, and they must be reasonably construed." It was held, however, that minor plumbing repairs might be made without approval of the board of health.

NEW YORK SANITARY CODE

Additions and amendments to the New York State Sanitary Code are given in the *Health Notes* for July 7, 1924. The principal change is the addition of epidemic (lethargic) encephalitis to the list of communicable diseases and regulations concerning them.

PHYSICIANS IN VETERANS' BUREAU

President Coolidge on June 7 signed an executive order making 657 United States Public Health Service physicians "Special Experts" in the Veterans' Bureau. This action was essential because of the passage of the Reed-Johnson Veterans' Bureau Law, which made no specific provisions for Public Health Service doctors now in the Veterans' Bureau. These doctors have for the past two years been employed in the Veterans' Bureau at Washington and in veterans' hospitals throughout the country; and heretofore have been in the Reserve Corps of the United States Public Health Service. The order of the President is made under the general terms of the Reed-Johnson Law, which places on the "technical and administrative staff of the Veterans' Bureau" such experts and assistants as the Director may prescribe. The effect of the order will be to give these doctors a rating through which it is unnecessary for them to comply with Civil Service Commission regulations.

ILLEGAL PRACTICE OF MEDICINE

The right to require chiropractors to pass an examination given by the State Board of Medical Examiners before being permitted to set up as healers has been upheld by the Alabama Supreme Court in the case of *Jackson* v. *State* (99 So. 826). In commenting on this case, the *New York Law Journal* for June 27, 1924, says, "It requires no argument to support the proposition that a statute denying to all persons not obtaining a certificate of qualification from the State Board of Medical Examiners the privilege of engaging in the profession of physician and surgeon is a valid exercise of the police power of the state. Indeed, it has as its main basis the most fundamental object of the police power, to wit, the protection of the health and welfare of the general public."

MORE COURT DECISIONS

Public Health Reports for July 11, 1924, contains abstracts of seven court decisions of interest to sanitarians. In Michigan there is a constitutional provision that no law shall embrace more than one subject, which shall be expressed in its title. The Supreme Court held that an act (No. 272 of 1919) "to protect the public health; to prevent the spreading of venereal diseases; to prescribe the duties and powers of the State Department of Health and of local health officers and health boards with reference thereto, and to make an appropriation to carry out the provisions hereof," was valid. (*People* v. *Wohlford*, 197 N. W. 558.)

The Supreme Judicial Court of Massachusetts decided, in *Kelly et al.* v. *Board of Health of Peabody et al.*, 143 N. E. 39, that a local board of health could not authorize by vote the doing of that which a city ordinance forbade. The Texas Court of Civil Appeals has upheld a city ordinance defining garbage and prohibiting the hauling of it by anyone but a licensed garbage officer of the city or his assistant. (See our comment on plumbing above.)

A local milk ordinance which conflicted with the state law and regulations has been held void by the Louisiana Supreme Court. This is interesting in connection with the Kansas decision cited in the first note above, and really reaches the same result because there was no conflict in the Kansas case. The Louisiana cases were brought against the city of New Orleans by several persons and will be found in volume 99, *Southern Reporter*, page 391 on.

PUBLIC HEALTH NOTES

GENERAL

Research Fellowship in Industrial Hygiene.—In cöoperation with the United States Bureau of Mines, the School of Mines and Metallurgy of the University of Missouri offers a Fellowship in Industrial Hygiene. The work will be conducted in the Department of Hygiene of the School. The fellowship is open to graduates who have a Bachelor of Science degree in Public Health or equivalent, or a Bachelor's degree in the Arts and Sciences or equivalent and an M.D., and have had the proper training in biochemistry, pathology and physics, and who are qualified to undertake research work. The income from the fellowship is $800 per annum. Fellows pay fees amounting to approximately $30 per year.

Fellows will register as students in the School of Mines and Metallurgy of the University of Missouri, and become candidates for the degree of Master of Science, unless this or an equivalent degree has been earned. If the Master's degree has been earned, this work will count as an additional year towards a Doctorate. The class work will be directed by the heads of the departments of instruction, but the greater portion of the Fellow's time will be spent in research work. The purpose of this work is to undertake the solution of definite problems confronting the mining and metallurgical industries of the State of Missouri. Problems for the following year will deal with the action of rock dust on the lungs.

The application should be addressed, Director, School of Mines and Metallurgy, University of Missouri, Rolla, Mo.

A Society Disbands!—The American Section of the International Association for the Promotion of Child Welfare met in Toronto and considered what steps should be taken in view of the fact that the Executive Committee of the International Association on June 14th had voted to disband. It was decided that the American Section disband, and it was further decided that at the present time it was not best to reorganize for the purpose of affiliating with any projected international association in Brussels.

Miss Margaret Sawyer, for five years National Director of the Nutrition Service of the American Red Cross, has resigned to take up the position of Director of the Educational Department of the Postum Cereal Company, New York. Her departure from National Headquarters is a matter of regret to her colleagues for she is a woman of charm, a fine organizer, with alert intellect and a broad, penetrative mind keen to turn the need of the moment to wise foundation-building for the future.

The Prevalence to Drug Addiction in the United States.—The article by Kolb and DuMez on the subject of "Drug Addiction," in *Public Health Reports* issued May 23, 1924, is a most valuable and interesting contribution to a subject that has caused so much dispute and misrepresentation. It is also quite cheering in its tone. Painstaking investigations would seem to indicate that the total number of drug addicts in this country is about 110,000, and that the number of addicts has decreased steadily since 1900. Before the decrease set in, there may have been 264,000 addicts in this country. The average daily addiction dose of opiates, in terms of morphine sulphate or heroin hydrochloride, is not less than six grains. A dose of cocaine hydrochloride is practically the same.

Physicians are acquitted of any significant measure of responsibility for the creation of addicts. In the main it would seem that the addicts are of the delinquent type.

The article is one which will undoubtedly serve a very useful purpose in counteracting the alarmist utterances of those who have not been in so favorable a position for appraising the prevalence of drug addiction.

STATE

Connecticut

The Bureau of Laboratories of the State Department of Health has moved to Hartford. Since 1918 the laboratories have occupied the Botany Building of the Connecticut Agricultural Station on Huntington Street, New Haven, to which place it moved from Middletown in 1917.

The Bureau of Laboratories will be on the second and third floors of a building on the

corner of Pearl and South Ann Streets, Hartford. Number 247 Pearl Street.

The Connecticut Public Health Association held its spring meeting at the Memorial Hospital in Manchester, Conn., on July 2. Among the speakers were Dr. Stanley H. Osborn, State Commissioner of Health, who outlined legislation on slaughterhouse construction and meat inspection, and Professor Ira V. Hiscock of Yale University, who reported on a survey of health activities in twenty-one small cities and large towns of the state.

Illinois

Illinois State Laboratories Twenty Years Old.—The twentieth anniversary of the founding of the state diagnostic laboratories was celebrated by the Illinois State Department of Public Health at Springfield, June 27. The principal speakers were Drs. M. P. Ravenel, University of Missouri, and Thomas Parran, U. S. Public Health Service.

In Dr. Ravenel's talk on "Relation of the Laboratory to the Public Health Movement," he stated that America has led the world in the practical application of the laboratory and the amount spent on equipment and personnel. He gave a short history of the development of the diagnostic laboratory, stating that Rhode Island had the first state laboratory, founded by Gardner T. Swarts, and in New York City was established in 1893, the first city laboratory for diagnostic purposes, by the late Dr. Hermann M. Biggs. This has developed into one of the leading research laboratories of the United States. Dr. Ravenel regretted the small pecuniary rewards received by laboratory workers, despite the expansion in laboratory work and its wonderful possibilities for the future.

Dr. Parran's address was on "The Next Step in Public Health Work." He spoke of the progress of the past two decades in research, especially in the laboratory. He stressed the present great need for full-time medical health officers in rural sections. The next step, according to Dr. Parran, is the development of local health departments to apply the knowledge, especially in rural areas, which laboratory and field researches have made available.—*Illinois Health News*, July, 1924, p. 195.

Development of Laboratory Work in Illinois.—In 1904, Dr. James A. Eagan, Secretary Illinois State Board of Health, succeeded in acquiring funds for the opening of a laboratory. At first it occupied a single room, and after many moves, is now located in the State House. From 171 examinations in 1904 the number has grown to 125,000 in 1923. There are many branch laboratories throughout the state, among which are seven for diphtheria diagnosis alone.

The main diagnostic laboratory, the branch laboratories and the biological and research laboratories make up the Division of Laboratories. In addition to these are the water and sewerage laboratories under the Division of Sanitary Engineering, and the venereal disease laboratory work, done in Chicago through funds supplied by the Division of Social Hygiene.

The water and sewage laboratory has a field outfit which in times of emergency can be sent to any city in the state.—Thomas G. Hull, Ph.D., Chief Bact. Ill. Dept. of P. H., *Illinois Health News*, July, 1924.

Dr. Edith B. Lowry, of St. Charles, Illinois, has been appointed to and has accepted the position of superintendent of the Division of Child Hygiene and Public Health Nursing of the State Department of Public Health, effective July 15, 1924. Dr. R. C. Cook, who has been acting chief of the Division since February, will be retained in his former capacity of assistant superintendent. Doctor Lowry, who has the training not only of a physician but that of a nurse and teacher as well, comes to the Department after a wide experience in public health service, having worked successively with the Chicago health department and the United States Public Health Service. In the latter capacity she specialized in the field of maternity and child hygiene, having organized divisions to do work in this field in a number of states and having conducted a large number of special studies at various points in the country.

Twenty-five well baby conferences were held at as many different points in the state by the staff members of the State Department of Health during the first half of the year. A total of 1,318 babies were examined. Out of this number 400 were found to be underweight, while 740 had abnormal throat conditions, such as enlarged tonsils and adenoids. Only 14 had been vaccinated against smallpox, while 1,053 had their births properly registered.

The reported incidence of communicable diseases in Illinois for the first six months of this year stood at the total of 87,951 cases, or 31,940 cases below the total for the corresponding period of 1923. The total for the period this year was considerably lower also than for that of either 1922 or 1921, the latter being the lowest on record prior to 1924. Typhoid fever incidence was up by an even 100 cases for the six months as compared with the first half of 1923; smallpox was down by 99 cases. Measles fell off from 41,489 to 17,554, scarlet fever jumped from 5,663 to 7,191, whooping cough declined from 6,224 to 3,481, and diphtheria dropped from 5,756 to 3,887, while the reported diphtheria carriers increased from 1,906 to 2,033. Very sharp declines were recorded in the prevalence of both influenza and pneumonia, the former falling from 6,926 reported cases to 753 and the latter from 14,054 to 9,157. Infantile paralysis fell from 35 to 18 reported cases, while tuberculosis dropped from 9,786 to 7,460. The venereal disease cases reported increased from a total of 12,902 to 15,115. Estimated at an average of 10 days for each case, there were over 300,000 days, or something more than 800 years, of quarantine time obviated by the total decline in the communicable diseases for the half year.

Registration has opened for the ninth annual State Fair Better Babies Conference, which will be conducted by the State Department of Public Health at Springfield, September 13-20. Applications from more than fifteen counties involving the entry of over 200 children have already been filed.

New Jersey

The Hackensack Board of Health has appointed L. Van D. Chandler full-time health officer. Mr. Chandler, who was trained in biology and public health in the Massachusetts Institute of Technology, was for a time engaged in mosquito extermination work, and later as sanitary inspector for the Plainfield Board of Health. After two years' commercial work, he has returned to public health.

Twenty municipalities in nine counties in New Jersey report 99 rabid dogs discovered and 125 persons bitten by rabid animals during the first six months of the year 1924. This number is in excess of any previous total for such a period. In the August issue of the *Public Health News*, published by the New Jersey State Department of Health, is given a list of the cities which have adopted measures to prevent the spread of the disease.

Dr. Julius Levy, consultant of the Bureau of Child Hygiene of the State Department of Health, attended the meeting, early in July, of the English Speaking Conference on Infant Welfare, organized jointly by the National (British) Association for Prevention of Infant Mortality and the National (British) Baby Week Council, with headquarters in Caxton Hall, Westminster, London. Dr. Levy was delegated to represent the American Public Health Association at this meeting.

At the September meeting of the New Jersey Health Officers' Association, two timely and important papers will be presented. Dr. Abraham Zingher, of the New York City Department of Health, will discuss the newer methods for the diagnosis and prevention of scarlet fever and Dr. Roland Freeman, Jr., of New York City, will give an account of the work being done in the immunization of children against measles. The meeting will be held at the Newark Academy of Medicine, Newark, on Thursday, September 18, and will begin at 3 P.M. The practicing physicians of the state are invited to attend this meeting.

The East Orange Health Department appointed Mr. Frank J. Osborne full-time health officer on June 5, 1924. Mr. Osborne was the former secretary of the American Society for the Control of Cancer. Mr. Osborne is a graduate of the Massachusetts Institute of Technology, and began his public health work as assistant health officer of Montclair. After a year he was made full-time health officer of Orange, and remained in this position for three years. He then became the executive secretary of the New York Social Hygiene Society, resigning when he was commissioned first lieutenant in the Sanitary Corps, U. S. Army.

New Jersey Sanitary Association.—The June meeting of the Executive Committee of The New Jersey Sanitary Association was held at the home of Dr. B. S. Pollak, Director of the Hudson County Tuberculosis Sanatorium at Secaucus, New Jersey, on June 23, 1924.

It was decided to hold the next annual meeting of the Association in Atlantic City on the first Friday and Saturday in December, the hotel in which the meeting will take place to be selected later by the special committee.

It was voted to extend an invitation to the Health Officers' Association of New Jersey, the Essex County Health Officers' Association, the Associated Executives of the Mosquito Commissions, and the County Mosquito Extermination Commissions of the state to meet with the Sanitary Association at its next annual meeting.

It was decided to accept a proposition submitted to the committee for the printing of programs of the meetings of the Association for the next three years, it being understood that a special edition will be printed of the Fifteenth Anniversary Program for this year. A committee of five members was appointed by the president to adjudicate the matter.

In response to a letter from the Editorial Department of the American Public Health Association, Dr. Charles J. Merrell, chairman of the Publication Committee, was appointed as correspondent to represent the Sanitary Association and to furnish the American Public Health Association with items to be printed in the space to be devoted to this purpose in the JOURNAL of the said Association for matters of interest from affiliated societies.

The secretary of the Association was instructed to communicate with the President of the United States urging him to name Congressman T. Frank Appleby, president of the New Jersey Sanitary Association, as a member of the International Committee to take up the question of pollution of the ocean outside of the three-mile limit.

The report of the treasurer showing present financial condition was accepted and it was decided that a change be made in the constitution of the Association to provide for life memberships, the secretary being instructed to send out notice in reference to this matter prior to the next annual meeting of the Association.

New York

Dr. George C. Ruhland Becomes Deputy Health Commissioner of Syracuse.—Syracuse is fortunate in acquiring the services of a man of such wide experience as Dr. Ruhland, who comes from Milwaukee, where he has served as Health Commissioner for the past ten years. During that time he has increased the appropriation for public health in Milwaukee from thirty-one cents to ninety-four cents per capita; adding 3.3 years to the average life of its people. During this time the city has increased its infant welfare stations; lowered its infant mortality rate from 145 to 75; effected the pasteurization of 93 per cent of its milk supply and the tuberculin testing of all its cattle, and reduced the tuberculosis death rate from 89 to 50. There are many other evidences of the wise and constructive leadership of Dr. Ruhland in the city of Milwaukee.

Dr. Ruhland started his career as a war correspondent and newspaper man, and was later Director of the Public Health Laboratories of Milwaukee, and Professor of Hygiene and Sanitation in Marquette University.

Dr. Ruhland's work as Deputy Health Commissioner of Syracuse will be of great interest nationally as well as locally. An arrangement has been made between the Milbank Foundation, which is assisting financially in the development of the Syracuse program, and the Committee on Municipal Health Department Practice of the American Public Health Association, through which the Syracuse Department of Health will undertake to deal with the various municipal health problems in such a way as to serve as a demonstration for other city health departments throughout the country.

Pennsylvania

Handbook of State Institutions.—In the interests of a more intelligent use of the institutions under its jurisdiction, the Pennsylvania Department of Welfare has published a directory of state and semi-state institutions. This handbook supplements the Map of State Institutions which was recently prepared and issued by the Public Charities Association of Pennsylvania. It gives the names, location, capacity and districts of the state institutions, and discusses briefly the methods and requirements for admission, discharge and parole. It contains in concise form data of interest to workers with mentally ill, mentally defective, epileptic, delinquent and other classes, and indicates sources of further information. The handbook may be obtained without charge from the Welfare Information Bureau, Public Charities Association of Pennsylvania, 311 South Juniper Street, Philadelphia.

CONVENTIONS, CONFERENCES AND MEETINGS

This calendar is published through the coöperation of the National Health Council, 370 Seventh Avenue, New York City. The Council will be glad to answer promptly any written or telegraphic inquiries regarding meeting dates in order to avoid conflicts.

September 9-13, American Electro-Therapeutic Association, New York, N. Y.

September 15-20, American Academy of Ophthalmology and Oto-Laryngology, Montreal, Canada.

September 18, New Jersey Health Officers' Association, Newark, N. J.

September 18-20, American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Cleveland, Ohio.

September 22-24, Mississippi Valley Conference on Tuberculosis, Sioux Falls, S. D.

September 25-26, Biennial Conference of Health Officers of Wisconsin, Madison, Wis.

September 29-October 3, National Safety Council, Louisville, Ky.

September ——, American Roentgen Ray Society, Boston, Mass.

October 6-9, American National Red Cross, Washington, D. C.

October 6-13, American Hospital Association, Buffalo, N. Y.

October 13-14, Oklahoma Public Health Association, Oklahoma City, Okla.

October 14-16, American Child Health Association, Kansas City, Mo.

October 15-17, American Association of Railway Surgeons, Chicago, Ill.

October 16-24, Playground and Recreation Association of America, Atlantic City, N. J.

October 20-23, American Public Health Association, Detroit, Mich.

October 20-24, American College of Surgeons, New York, N. Y.

October ——, National Motion Picture League, New York, N. Y.

November 10-14, American Dental Association, Dallas, Texas.

November 11-13, New York State Conference of Charities and Correction, Syracuse, N. Y.

November 13, National Society for Vocational Education, Indianapolis, Ind.

November 13-15, Association of Military Surgeons of the U. S., San Antonio, Tex.

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